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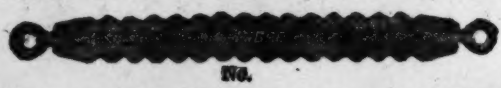
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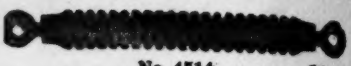
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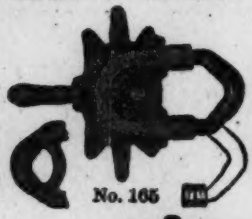
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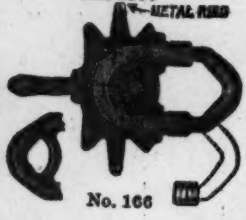
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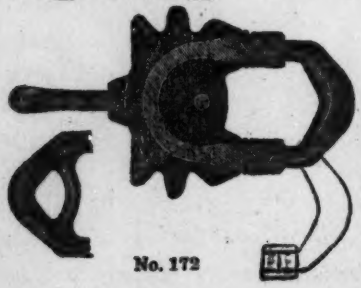
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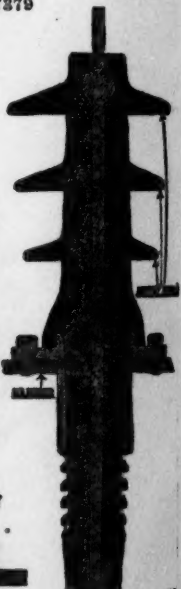

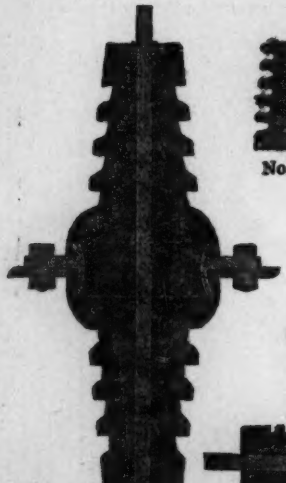
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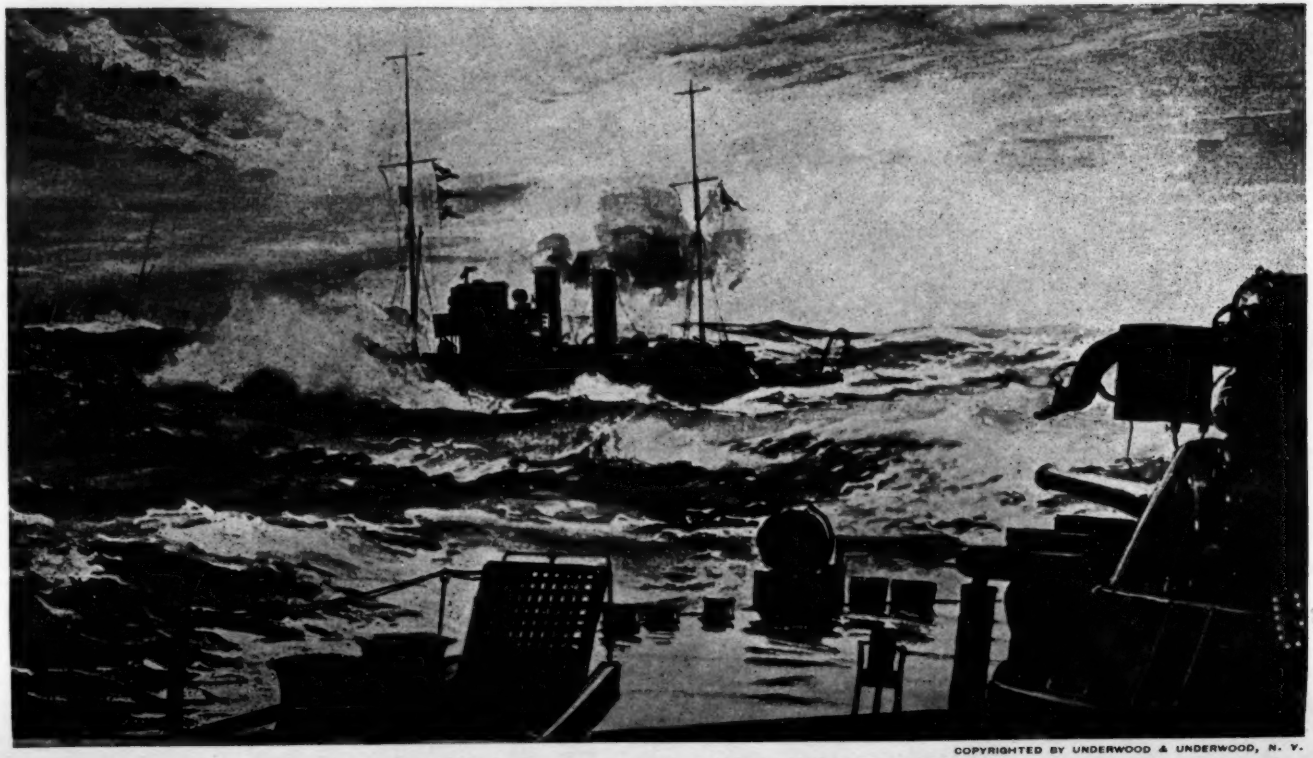

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ON CONSTANT GUARD AGAINST U-BOATS AND DESTROYERS IN THE NORTH SEA.

UNITED STATES NAVAL INSTITUTE
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THE RIGHT OF VISIT AND SEARCH

By CAPTAIN WILLIAM C. WATTS, U. S. Navy

DEFINITION

In general terms, the Right of Visit and Search; in its commonly accepted meaning, may be defined as that right accorded to lawfully commissioned public vessels of war of belligerent nations to overhaul outside of neutral waters private neutral vessels for the purpose of visiting, and if necessary searching, them in order to determine their character and nature of service.

More specifically, the object of visit and search is to determine:

(1) The vessel's nationality,

(2) Whether there is contraband on board, either absolute or conditional,

(3) Whether breach of blockade is intended or has been committed,

(4) Whether engaged in unneutral service, either direct or indirect,

(5) The ports of departure and destination.

It however may be exercised for any purpose that can be shown to be necessary to the belligerent power concerned, either for its protection or for the prevention of acts advantageous to the belligerent activities of its enemy.

ON CONSTANT GUARD AGAINST U-BOATS AND DESTROYERS IN THE NORTH SEA.

HISTORICAL

In the earliest wars of which there is authentic record, belligerents recognized the right to destroy all public and private enemy property that they were able to seize, and frequently even went so far as to treat neutral ships carrying enemy goods as enemy vessels. Even in those days when neutral rights were so lightly regarded, it must have been necessary to resort to the right of visit and search in some form to determine the presence of enemy goods on neutral vessels before their destruction.

Gradually, however, the trend of custom was in the direction of greater liberality to neutrals, and a clearer distinction between their vessels and property and those of the belligerents. This was first formally recognized in the Consolato del Mare, one of the most important and best preserved of the early codes of usages and customs. This code, compiled at Barcelona, Spain, in the middle or latter part of the fourteenth century and comprising the maritime usages of the communities of the Mediterranean, was the first also to mention the right of visit and search, and undoubtedly ever since that time it has been recognized, although details of its exercise have been the subject of much protest and disagreement throughout all the succeeding years, up to and even including the present.

The *raison d'être* of the right of visit and search is most obvious in principle, and perhaps never has been set forth more forcibly in official records than by Sir William Scott (afterward Lord Stowell) who, in the case of the *Maria* in 1799 (1 C. Robinson's Admiralty Reports, 340) says:

> I state a few principles of that system of law which I take to be incontrovertible.
>
> 1. That the right of visiting and searching merchants ships upon the high seas, whatever be the ships, whatever be the cargoes, whatever be the destinations, is an incontestable right of the lawfully commissioned cruisers of a belligerent nation. I say, be the ships, the cargoes, and the destinations what they may, because till they are visited and searched it does not appear what the ships, or the cargoes, or the destinations are, and it is for the purpose of ascertaining these points that the necessity of this right of visitation and search exists. This right is so clear in principle that no man can deny it who admits the legality of maritime capture, because if you are not at liberty to ascertain by sufficient inquiry whether there is property that can be legally captured it is impossible to capture.

DEVELOPMENTS FROM EARLY CONCEPTIONS

In the earlier days, Great Britain asserted the right to extend visitation to neutral men-of-war, and tried to exercise this right, in part successfully and in part unsuccessfully, but during the nineteenth century it became universally recognized that neutral men-of-war are not objects of the right of visit and search of belligerents.

Also it required time to settle definitely what vessels may exercise the right of visit and search. When privateering formed such an important element of the sea warfare of some states, little restriction could be exercised as to the responsibility of those exercising the right, and neutral commerce suffered great and unnecessary inconvenience and loss through arbitrary acts. Nevertheless the right of privateers to visit and search was generally maintained. But since even such states as have not acceded to the Declaration of Paris, by which privateering was abolished, do not in practice issue Letters of Marque at the present time, it is probable that this question will not again be presented.

Oppenheim states (Vol. 2, page 534) that "since an armistice does not bring war to an end, and since, on the other hand, the exercise of the right of visitation is not an act of warfare, this right may be exercised during the time of a partial as well as of a general armistice." This dictum represents the consensus of opinion and practice on this question, but it is not universally recognized and has been the subject of some uncertainty. As a possible corollary to this holding, it might also be said in strict law that the right of visit and search might be exercised after the conclusion of peace, but before the treaty of peace is ratified. This seems to be carrying the principle unduly far, and the "Règlement international des prises maritimes" of the Institute of International Law declares the right of visit and search to cease "avec les préliminaires de la paix." This code also disagrees with the foregoing views of Oppenheim as to visit and search during an armistice.

Various efforts have been made in treaties and otherwise to prescribe definitely the distance to which a man-of-war may approach a merchantman for the purpose of exercising the right of visit and search. These were undoubtedly induced by a desire to protect the safety of the neutral ship from unlawful damage from pirates posing as belligerent men-of-war, and it was variously

suggested that the visiting vessel should not approach within "cannon shot," or within half such distance. But all of these propositions were advanced by those not familiar with sea conditions, and with the impracticability of using small boats over great distances, especially in bad weather, so that nothing materialized from these efforts. Likewise, it was urged at one time that the merchantman should be required to send its papers to the visiting vessel, but as generally the man-of-war would have a more complete outfit of boats it was decided that the duty of communication lay on the latter.

At times, there has also been a tendency to limit the area in which visit and search may be exercised, it being claimed that its extension to all parts of the world imposes unnecessary hardships on neutrals. One proposition contemplated limiting the exercise of the right to the area within a radius of one hundred miles from belligerent ports. But in this, as in all other plans, it was evident that a different effect on various neutrals would be produced, depending on their geographical location; and, largely because such distinction is so contrary to the principles of equal rights in international law, none of the restricting proposals has been adopted. Great Britain, in 1900, during the Boer War voluntarily discontinued searching vessels in the Red Sea, but this was quite as much to save annoyance to herself as in deference to neutral interests. The U. S. Naval War College reached the following conclusion as to limitation of area in which visit and search should be exercised (Topics and Discussions, 1905):

> The area of the exercise of the right of visit and search should not be limited, but greater restrictions may justly be demanded against its exercise in an arbitrary and burdensome manner.

In connection with the subject of the area of applicability, it may be noted that the practice has grown up of recognizing the right of belligerents to carry on visit and search within the maritime belts of their allies who are also belligerent, but only with their consent, this in addition of course to the general right on the high seas, within their own territorial waters, and within those of their enemy or enemies. However, the exercise of this right within the maritime belt of a neutral is an offence against the neutrality of that state which would not be condoned.

In every respect other than in restricting the area in which the right of visit and search may be exercised, the general develop-

ment of international law affecting this question has been in an effort to produce thereby as little inconvenience, interference and damage to neutral interests as possible. Consequently it became recognized in general terms that the right must be exercised with tact and consideration, and in strict conformity with treaty provisions where they exist; that the visit and search must be conducted in such manner as to attain its object and nothing more; that any unnecessary injury to the merchant ship or its cargo, or any oppressive or insulting conduct toward its officers or crew may be good ground for suit in the courts to which the man-of-war is amenable; that mail ships, although they can be visited in case of necessity, should not be held up, detained or diverted from their course more than absolutely necessary; and finally that no ship should be diverted unduly from its course merely on suspicion, although this latter point is one that has been the subject of much dispute during the present war, as mentioned later.

Thus we find in the British Naval Prize Act of 1864, Chapter II, various regulations for the guidance of British naval officers in the exercise of their powers of visit and search. Pertinent among them, as indicating the drift of opinion, is the following:

> If a commander in the exercise of these powers detain a vessel without probable cause, or do an act not sanctioned by international law or otherwise unwarrantable, he will incur the displeasure of Her Majesty's government, and will also be personally liable for damages.
>
> The commander is likewise responsible in damages for the acts of all under his command, whether he himself is present or absent; . . . .

Likewise, at a later date, the Japanese regulations relating to capture at sea, of 7 March, 1904, make specific provisions for the protection of neutrals, significant paragraphs being as follows:

> Art. 61. In visiting or searching a vessel, the captain of the man-of-war shall take care not to divert her from her original course more than necessary, and as far as possible not to give her inconvenience.
>
> Art. 62. The boarding officer, before he leaves the vessel, shall ask the master whether he has any complaint regarding the procedure of visiting or searching or any other points; and if the master makes any complaints he shall request him to produce them in writing.

Article XVIII of the treaty between the United States and Italy of 26 February, 1871, contains definite provisions tending to reduce the annoyance and interference caused to merchant vessels of the one when neutral, by the visit and search of men-of-war of the other, when a belligerent. The United States also has treaties with

the following other powers in which the exercise of visit and search is affected: Bolivia, 1858; Colombia (New Granada), 1846; Prussia, 1799; Sweden (and Norway), 1783.

As previously stated, it became generally conceded that neutral vessels carrying mail shall be interfered with as little as possible. The Proclamation of the President of the United States at the time of the War with Spain, dated 26 April, 1898, includes the following, as indicating the attitude of this country on this subject at that time:

> The right of search is to be exercised with strict regard for the rights of neutrals, and the voyages of mail steamers are not to be interfered with except on the clearest grounds of suspicion of a violation of law in respect of contraband or blockade.

Nevertheless, some uncertainty has always existed as to the further right, in case a mail ship is visited, to search the mails when contained in sacks sealed in accordance with the regulations of the neutral State under whose flag the vessel sails. A certificate from a duly authorized postal agent that the sacks contain no unneutral matter, or correspondence intended for the military advantage of the enemy, is often accepted as authorizing the mail to be forwarded unopened. In the Civil War, this led to a lengthy consideration of the case, involving the question of whether mails on captured blockade runners might be sent to the prize court to be opened, in which the Secretary of State and the Secretary of the Navy disagreed (Moore's Digest, Vol. 7, p. 480 *et seq.*). The conclusion was reached that such public mails "would not be opened, but would be forwarded to their destination." The question is not free from doubt, however, in its various phases, as is indicated by the differences of opinion on the subject in the present war.

More differences of opinion in the past centuries have arisen over the effect of Convoy, both neutral and belligerent, on the right of visit and search than over any other phase of the subject, and the development of recognized standards in these matters will now be considered.

NEUTRAL CONVOY

In 1653, during a war between Great Britain and the Netherlands, Sweden claimed that the belligerents should waive their right of visitation over Swedish merchantmen, if the latter sailed under the

convoy of a Swedish man-of-war whose commander asserted the absence of contraband on board the convoyed vessels. Queen Christina of Sweden accordingly directed Swedish men-of-war to act as convoys when needed and "in all possible ways to decline that they or any of those that belong to them be searched." The Peace of Westminster, occurring soon afterwards, by putting an end to the existing war, prevented any immediate occasion of dispute, but the question kept arising repeatedly from various sources thereafter. In the same year, some Dutch merchant vessels under convoy of a man-of-war were searched by the British; the States-General admitted that "no reasonable complaints could be made," although they "were persuaded that such visitation and search tended to an inconveniency of trade." Two years later the Dutch Admiral De Ruyter, while escorting a convoy of ships, successfully resisted an attempt to visit made by the Commodore of a British squadron. The result was a compromise arrangement between the two states, and no further discussion arose until 1756 when the Dutch being neutral again claimed the right of convoy. Gradually the doctrine gained ground among Continental neutrals, Great Britain opposing, but it was not until the end of the eighteenth century that it was so seriously pressed as to demand attention. The American War of Independence raised numerous instances for discussion, and between 1780 and 1800 treaties were concluded in which Russia, Austria, Prussia, Denmark, Sweden, France, the United States, and other states recognized the right of convoy. Great Britain continuing to refuse to acknowledge that right, and in July, 1800, having captured a Danish man-of-war and her convoy of six merchantmen for resistance to visitation, the Baltic powers entered into the treaty of Armed Neutrality of 1800. "Yet Great Britain still resisted, and by Article 4 of the 'Maritime Convention' of St. Petersburg of June 17, 1801, she conceded to Russia only that vessels under convoy should not be visited by privateers. During the nineteenth century more and more treaties stipulating the right of convoy were concluded, but this right was not mentioned in the Declaration of Paris of 1856, and Great Britain refused to recognize it throughout the century." (Oppenheim, Vol. II, p. 536.) The Declaration of Paris having enunciated the doctrine that the neutral flag covers enemy goods other than contraband, the British found less necessity of insisting on their claimed right to visit and search vessels under

escort. Moreover in the Crimean War they waived this right, in order to secure harmonious cooperation with the French, who recognized the right of convoy. So it may be said that the British opposition to the otherwise general acceptance of that right was weakening. William Edward Hall, an eminent British authority on International Law, writing in the latter part of the nineteenth century, sets forth what may fairly be considered the British views on the subject, asserting that the Continental contention of the right of convoy as an established rule of law is inadmissible; and that the exercise of this right is unfair to belligerents in placing too much temptation in the way of unscrupulous or careless neutrals to benefit their trade at the expense of the belligerent. In the fourth edition of his treatise on International Law, published in 1895, the following conclusion is expressed:

> It cannot but be concluded that the principle of the exemption of convoyed ships from visit is not embraced in authoritative international law, and that while its adoption into it would probably be injurious to belligerents, it is not likely to be permanently to the advantage of neutrals.

Nevertheless, Great Britain abandoned her opposition to the right of convoy at the Naval Conference of London of 1908-1909, and the matter is settled satisfactorily by Articles 61 and 62 of the Declaration of London, which is recognized as expressing the unanimous opinion of the powers, although all are not yet signatory to it. By these articles, it is provided that neutral merchant vessels under the convoy of a man-of-war flying the same flag are exempt from search and may not be visited, if the commander of the convoy, on request of the belligerent man-of-war, gives in writing all information as to the character of the vessels of the convoy and their cargoes which could be obtained by search. Should the commander of the belligerent man-of-war suspect any irregularities, he must communicate with the convoy commander who in turn must investigate, and in case the facts thus disclosed justify the capture of one or more of the vessels of the convoy, he must withdraw protection from the offenders who may then be captured by the belligerent man-of-war. In case a difference of opinion arises between the two commanders, the decision of the commander of the convoy must govern as between them, and the other commander may only protest and report the case to his government, to be settled through diplomatic channels.

BELLIGERENT CONVOY

When the acts of belligerents toward neutral private vessels were not always marked with that care and sense of rectitude that later developed, it was frequently advisable, and indeed almost necessary in some instances, for neutral merchantmen to apply for protection in the convoys of one of the belligerents. Whereas this protection was frequently granted and accepted, it seems to have been accompanied by the recognized risk of condemnation in case of capture, for the mere association with the belligerent convoy constituted an unneutral act.

Wheaton alone seems to take the stand that such an act of itself is insufficient to justify condemnation, though the detention and investigation of such a vessel is warranted, and if other incriminating circumstances then appear against her, a decree of condemnation might of course be pronounced.

Other authorities of both England and the United States generally agree, however, as was maintained by the English courts also, "that the acceptance by a neutral vessel of the convoy of a belligerent man-of-war is an illegal act, and in itself affords good ground for condemnation, if the vessel, while under such convoy, be captured by the other belligerent." (Moore's Digest, Vol. 7, p. 495.) It is noteworthy however that on one occasion the United States took a somewhat different stand in this matter, when indemnities were claimed against Denmark for the condemnation in Danish Prize Courts in 1810 of certain American vessels that had been captured without making any resistance whatever while in company with a belligerent British convoy. In this controversy the United States was represented by Mr. Wheaton, who has been mentioned as holding the minority view. His arguments were based largely on the contentions that a neutral vessel is not robbed of her neutrality by joining a belligerent convoy provided she makes no resistance, and that no right of the belligerent is thus injured, unless possibly that of visit and search which, besides not being a substantive and independent right, had never in the cases under discussion been opposed in fact. (Phillipson's Wheaton, 795 *et seq.*) Mr. William Beach Lawrence considers that the success of these negotiations with Denmark, in which that country agreed by treaty of 1830 to pay indemnity of $650,000, was "in a great degree, to be attributed to the personal character and special quali-

ties of Mr. Wheaton." Lawrence disagrees with the views of Wheaton, as do also Snow and Rivier, and it seems that if the question should arise again the United States would not attempt to follow the line of argument advanced in the negotiations with Denmark.

PROCEDURE

In different treaties, efforts have been made from time to time to prescribe the procedure in which the right of visit and search should be exercised. These, together with well-established custom and usage, resulted in a quite well-standardized procedure, as an example of which may be cited the following extract from the instructions of Rear Admiral William T. Sampson, U. S. Navy, during the war with Spain, as contained in Squadron General Order No. 10, of June 11, 1898:

> The following directions are given, subject to any special treaty provisions: After firing a blank charge and causing the vessel to lie to, the cruiser should send a small boat, no larger than a whaleboat, with an officer to conduct the search. There may be arms in the boat, but the men should not wear them on their persons. The officer wearing only his side arms, and accompanied on board by not more than two of his boat's crew, unarmed, should first examine the vessel's papers to ascertain her nationality and her ports of departure and destination. If she is neutral and trading between neutral ports the search goes no further. If she is neutral and bound to an enemy's port not blockaded, the papers which indicate the character of the cargo should be examined. If these show contraband of war, the vessel should be seized; if not she should be set free. No sealed hatches should be broken nor any examination of the cargo made.

It will be noted how zealously the rights of the neutral were protected by this procedure, and how considerably the practice of the belligerents in the present war has differed from it. The present instructions for the U. S. Navy governing maritime warfare, of June, 1917, prescribe a procedure for visit and search far more drastic than that used in 1898.

Before summoning a vessel to lie to, which may be done also by international signal, a ship of war must hoist her own national flag. If the summoned vessel refuses to lie to, resists, or takes to flight, she may, even though neutral, be pursued and brought to, by the use of such forcible measures as may be necessary. A shot across her bows should precede actual firing into her. If the vessel after having been visited is released, an entry to that effect

should be made in the log book by the boarding officer, a form for this purpose being prescribed for the U. S. Navy.

The subject of the results of resistance to visit and search, and the application of this principle to neutral vessels in belligerent convoy, is somewhat beyond this discussion of the right of visit and search. However, it may not be inappropriate to add that the Declaration of London covers this question fully and provides that forcible resistance to the legitimate exercise of this right involves in all cases the condemnation of the resisting vessel. Furthermore, goods belonging to the master of the vessel or its owner are treated as enemy goods, and the cargo is liable to the same treatment as that of an enemy vessel. An attempt to escape is not considered as forcible resistance, and, although force can be used to overcome either resistance or flight, condemnation follows forcible resistance alone. Authority given privately-owned vessels to carry arms for protection does not give it exemption from proper visit and search.

EXCEPTIONAL APPLICABILITY IN TIME OF PEACE

Although the right of visit and search is essentially a *belligerent* right, and is treated only from this aspect in this article, it should not be overlooked that it exists in certain limited respects in time of peace. Thus by many states it is recognized as legitimate in operations toward the suppression of the slave trade and other forms of piracy which are now generally prohibited by all civilized nations. Many treaties between foreign powers expressly recognize the right in such cases, especially with regard to suspicious vessels on the East Coast of Africa. Although the United States, largely because of its traditional aversion to the improper exercise of the right of visit and search, has generally opposed the extension of this right to its vessels, even in cases of suspected slave trading, it has recognized the "right of approach" to better determine circumstances of guilt in such cases (Stockton's Manual, p. 104). It must be recognized that this opposition to the more definite exercise of the right of visit and search with regard to suspected slave traders was contrary to the general attitude of the rest of the world.

Also in time of peace vessels in the territorial waters of a state may be visited and searched if necessary, in enforcement of the

customs regulations, and such action may even be taken on the high seas, when, while pursued by a vessel engaged in enforcing the revenue laws, the offending vessel has escaped from territorial waters.

INFLUENCE OF THE GREAT WAR

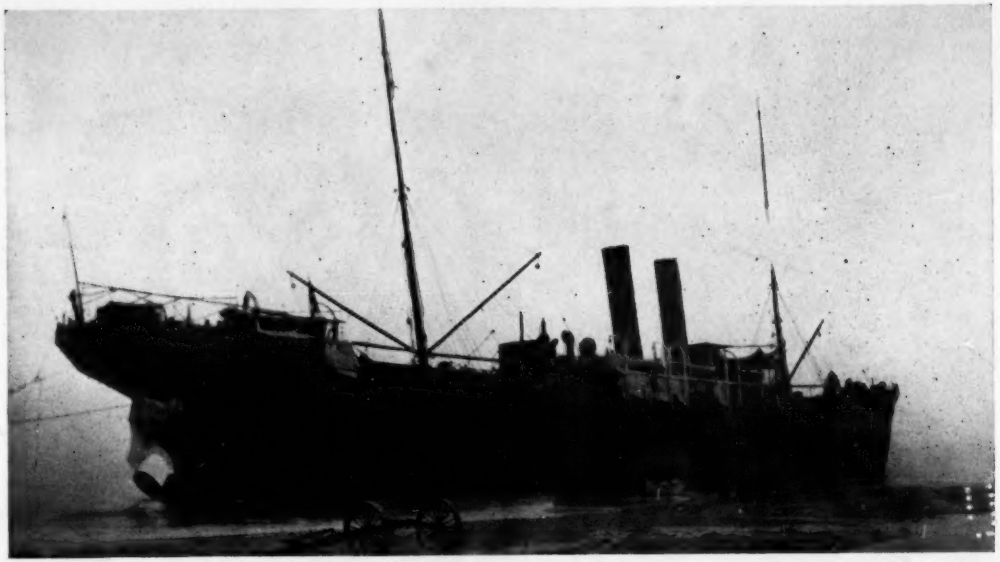
It is as yet too early, besides being somewhat inopportune under existing circumstances, to speculate as to what may be the result of practices during the present war on the accepted principles of the right of visit and search. Suffice it to say that in this connection, as in many others, the previously accepted tenets of International Law have been modified in certain respects.

Perhaps the most important development in the actual practice of this right during the present war has grown up from the contention that it is no longer possible to conduct it on the high seas with sufficient protection of the rights of the belligerent concerned. Merchant vessels have grown to such tremendous size that it is impossible to conduct a sufficiently thorough search, necessitated by the means adopted to prevent detection of contraband, except by systematic unloading of much of the cargo, which can only be done in port. Also, the motion of the ship at sea often prevents disturbing the cargo, and in small vessels it is often impossible to open certain cargo holds without serious danger from seas coming aboard in the heavy weather that is often experienced. Furthermore, since the high development of the efficiency of the submarine, it is a matter of too much danger for a war vessel to remain lying to near a merchantman for the purpose of conducting a search. Therefore it has become the practice for belligerents to require neutral merchantmen to come into port for examination of their cargo, thus departing from the previously accepted policy that such vessels were to be delayed as little as possible, and not diverted from their course for this purpose.

Also military necessity has been urged as demanding a greater degree of supervision over neutral mails than had been accepted as permissible in the past. As previously noted, this subject has been a troublesome one throughout the development of the principle of the right of visit and search, and it is hoped that the necessities of belligerents and the rights of neutrals may soon be harmonized by conventional agreement in this respect, into a recognized rule giving proper weight to both interests involved.

Comment is not deemed necessary upon the astounding policy adopted by one of the belligerents, that the indiscriminate sinking by submarines without warning of neutral merchant vessels entering certain zones, arbitrarily established by that government, is justifiable; this in spite of the long-established principle that, even in the rare instances when destruction of a good prize is warranted, it can only follow a determination of character from visit and, if necessary, search.

In cases where the principles of the International Law of the past have been invoked by neutrals in behalf of their interests, the replies from the belligerents have usually asserted the necessity of changes therein due to the well-recognized creation of new conditions in modern warfare. It remains to be seen what will be the result of the present complicated condition of conflicting views. When the exigencies of the emergency have passed and the calm judgment of the world is available, will be the time to pass on this all-important question of what shall survive and what shall be discarded in the International Law of the future on the subject of Visit and Search.



PHOTOGRAPH No. 2.

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SALVAGE OF THE ARGENTINE NAVAL TRANSPORT *PAMPA*

By CAPTAIN L. H. CHANDLER, U. S. Navy

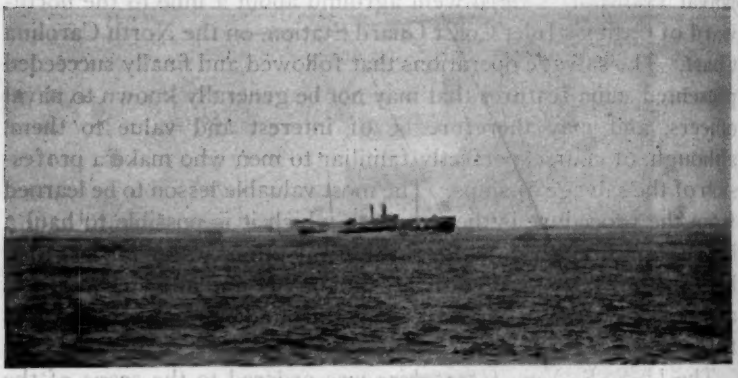
On December 30, 1917, in a heavy snow storm, the Argentine Naval Transport *Pampa* went aground about a mile to the northward of Caffey's Inlet Coast Guard Station, on the North Carolina Coast. The salvage operations that followed and finally succeeded presented some features that may not be generally known to naval officers, and may therefore be of interest and value to them, although, of course, perfectly familiar to men who make a profession of the salvage of ships. The most valuable lesson to be learned from the procedure is the extent to which it is possible to haul a heavy ship through sand or gravel in a depth of water far less than her draft, by keeping up a steady pull on her and allowing currents and sea to work the sand or gravel around her; in other words to "worry her through it."

The U. S. S. *New Hampshire* was ordered to the scene of the grounding to assist in the work and her commanding officer was directed to assume charge thereof. She arrived at daylight on the morning of January 2, 1918, and found the *Pampa* broadside on to the beach, with her head to the northward, the coast line here trending about northnorthwest and southsoutheast. Her general position is shown in Photograph No. 1, which was unfortunately taken at a very considerable distance from the ship, and is depicted more in detail in Diagram No. 1

The *Pampa* is a naval transport built on general merchant ship lines, being about 390′ long, and of 6000 tons displacement when loaded and of 2700 tons net burden. She was light when she grounded and drew 10′ 6″ forward and 13′ aft. As she lay on the beach she had 9′ of water alongside on the offshore side, and 3′ on the inshore side. As she lay, there was about 12′ of water not far outside, and at about a ship's length offshore was a bar having not more than 7′ of water on it at high water, and running

parallel to the beach for a considerable distance each way. This bar was about half the length of the ship in width, and the sea broke on it in any except the smoothest weather.

The *Pampa* had apparently jumped this bar and gone inside it when she grounded, thereby getting well inside the heavier breakers, and had accomplished this without seriously damaging herself. She had lost her rudder and rudder post. She had started a seam in one of her port bunkers, but this had been handled by her own crew by the use of hammocks, mattresses, etc., placed over it and held down by planks, with shores and wedges. It never gave any trouble. In trying to back off when



PHOTOGRAPH NO. 1.

she grounded, she had filled her main condenser and piping generally with sand, and her engines were no longer available. Shortage of fresh water had also compelled her to salt her boilers. Aside from this she was apparently uninjured, but was short of coal.

When the *New Hampshire* arrived there were found present the Merritt and Chapman Wrecking Company's tug *Rescue* (Ransone, master; Carlson, wrecking master), the Coast Guard Cutter *Seminole* (Lieutenant Blake, commanding), and the navy tug *Gorgona* (Ensign G. Freudendorf, comanding). These ships were anchored as shown on Diagram No. 1. The *Rescue* had her stern in about 16′ of water and about 50 yards from the breakers, which were then heavy, as a fresh northeast wind was blowing, with passing snow squalls. The *Rescue* tried to send her surf boat in with a line, but when the boat reached the surf she had to cut

the line and make the best of her way to the beach. The *Rescue* then finally succeeded in floating a line down to the *Pampa* on a buoy, and by evening had run a tow line to her. This was the situation on the evening of January 2.

During that evening the wind and sea rose so that the *Rescue* had to let go her line, and all the small craft had to move further out and anchor in deeper water. The *Rescue* bumped before she finally got out. About 1 a. m., January 3, the wind and sea became heavier, and all ships had to put to sea. The *New Hampshire* lost an anchor and disabled her windlass, the *Rescue* lost an anchor and chain, the *Seminole* lost an anchor and chain and had boiler

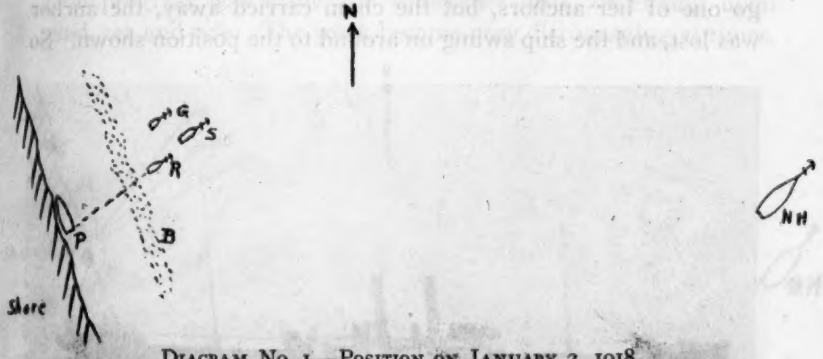


DIAGRAM NO. 1.—POSITION ON JANUARY 2, 1918.

P—Pampa. She drew before grounding 10′ 6″ forward and 13′ aft. As she lies she has 9′ of water on starboard side and 3′ of water on port side. She is 390′ long, of about 6000 tons displacement and 2700 tons net burden.

R—Rescue (Merritt and Chapman wrecking tug) trying to float a buoy to *Pampa.* By this means a 10″ line was run on January 2, but work had to be abandoned on account of storm before it could be used, and it washed ashore.

G—Gorgona (navy tug).

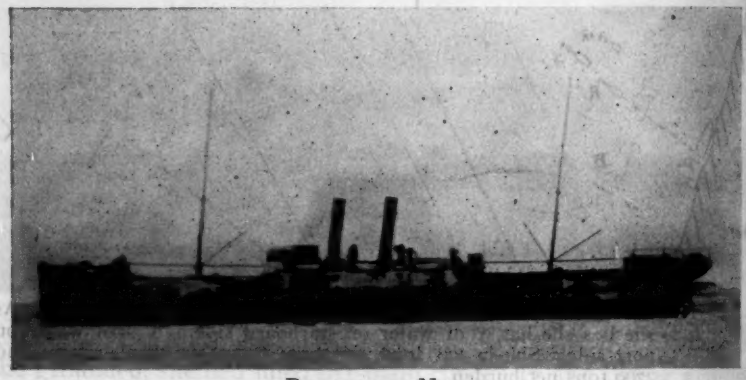
S—Seminole (Coast Guard Cutter).

NH—New Hampshire.

B—Bar of gravel with not more than 7′ of water on it, running parallel to beach and extending over 1000 yards to northward and over a mile to southward. When there is any swell the sea breaks on this, and if heavy, outside it. This bar is of gravel like the beach, which works easily and does not pack like fine sand. With northerly winds the current sweeps down the beach to the southward sweeping gravel with it. This current during a northerly blow appears to reach a velocity as high as 2 knots an hour and was running very strong on January 2. With southerly winds there is a weaker current setting to the northward. The shore line and the bar extend in about a northnorthwest-southsoutheast direction. The bar is about one-half the length of the *Pampa* in width. At the outer edge of the bar the water deepens gradually to a depth of 16 feet at about 300 feet from the bar.

troubles, and the *Gorgona* had difficulty in getting out. Bad weather continuing, the ships did not get back until January 4, on which day the U. S. S. *Lebanon* (Ensign H. N. Huxford, commanding) had also arrived. The *Seminole* did not return.

Upon our return it was found that the northeasterly wind and sea, and the southerly current had turned the *Pampa* through practically 180° in azimuth, and she was now heading to the southward, as shown in Photographs Nos. 2 and 3, and in Diagram No. 2. She had suffered no further damage. It was learned that as she turned around an effort was made to hold her with her head offshore and pointed to the northward and eastward by letting go one of her anchors, but the chain carried away, the anchor was lost, and the ship swung on around to the position shown. So



PHOTOGRAPH NO. 3.

far as depths of water and general position were concerned, her condition was practically the same as before except for the change in heading. The line run by the *Rescue* had been washed ashore and hauled aboard the *Pampa*.

As the weather was moderating, the work of preparation was started, and the plan is shown on Diagram No. 2. The *Rescue* and *Lebanon* anchored as shown, and ran 10" lines about 500 fathoms long to the *Pampa*, that from the *Rescue* running to the *Pampa's* starboard quarter. Difficulty was experienced in finding anything on the stern of the *Pampa* of sufficient strength to hold lines, and her rudder head casting was about the only hold available. The *Rescue* planted a 9000-pound anchor as shown, with a 15" cable laid hawser to the *Pampa*, also about 500 fathoms

in length, with heavy three-fold purchases on board the *Pampa* on which a strain was kept by the use of her winches. From the general arrangement shown on the diagram it will be seen that it was planned to heave her stern out so that she could finally be worked through the gravel, stern first. January 5, was occupied in this work.

All being ready, at high water during the night of January 5-6, strain was put on all the lines, and the *Pampa* made her first move, going astern about 25′ and swinging her stern out about 2°. From this time on strain was kept on the anchor-line at all times, and the tugs pulled during the upper half of each tide. Sometimes good progress was made and sometimes little, depending upon wind, sea and tide. The work became very discouraging at times,

DIAGRAM NO. 2.—POSITION ON JANUARY 4 BEFORE PUTTING STRAIN ON LINES, AND AFTER THE BLOW OF JANUARY 3.

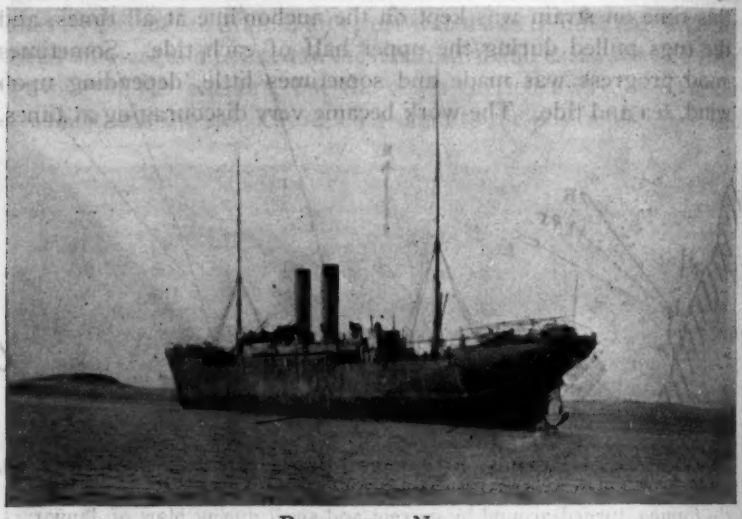
P—*Pampa*, turned around by current and swell during blow of January 3.
R—*Rescue*, with 10″ line fast to starboard quarter of *Pampa*. Length of line 480 fms.
L—*Lebanon* (navy tug), with 10″ line fast to port quarter of *Pampa*. Length of line 480 fms.
A1—A 9000-pound anchor planted by *Rescue*, with a 15″ line from stern of *Pampa*, 480 fms. in length, with heavy purchases on board *Pampa* kept taut by use of her winches.

Strain was kept on anchor at all times and tugs pulled at high water. The *Pampa* slowly turned and slid along on an arc of a circle until she reached the position shown on the next diagram.

for there followed a two-week period of almost unbroken westerly weather, during which there was not enough swell to work the ship and practically no current. What was really needed for quick salvage would have been a couple of smooth days at first to enable the gear to be properly arranged, and after that moderate northerly or northeasterly weather to maintain just swell enough to work the ship without pounding her, and to set up a southerly set.

Whenever we had any current and whenever the ship was working in the swell good progress was made; when the sea was smooth and there was no current but little was gained. However, it is probable that the conditions as they existed were the safer, and that they resulted in less damage to the ship, although the work took much longer.

By the morning of January 9, the *Pampa's* stern had been hauled out about 45° in azimuth, and she had been moved astern nearly



PHOTOGRAPH No. 4.

500′, and this hauled her stern into the outlying bar. She had about 300 tons of water ballast in her forward trimming tank, and her after tank was empty. Photograph No. 4 shows her stern up on the bar and her bow down in the deeper water inshore.

Between January 9 and January 11, the *Rescue* laid out another 9000-pound anchor with 15″ line and purchases aboard the *Pampa* and the situation was then as shown in Diagram No. 3 and Photograph No. 4.

On January 12, at about 1 a. m., the wind and sea came in strong from the southward and eastward and all ships had to let go everything and move further out. Strain was kept on the anchor lines, however, and by this means during the night, the sea helping, the

big gain of the operation was made, being a swing in azimuth of about 15° and in distance of about 125′. Captain Carlson, who was directing operations aboard the *Pampa*, thinks that he could have undoubtedly hauled the ship off at that tide, but knowing that there were no tugs at hand to take her, he only hauled as far as he could without getting her into surf heavy enough to pound her, then made her fast and held her to await the return of the tugs.

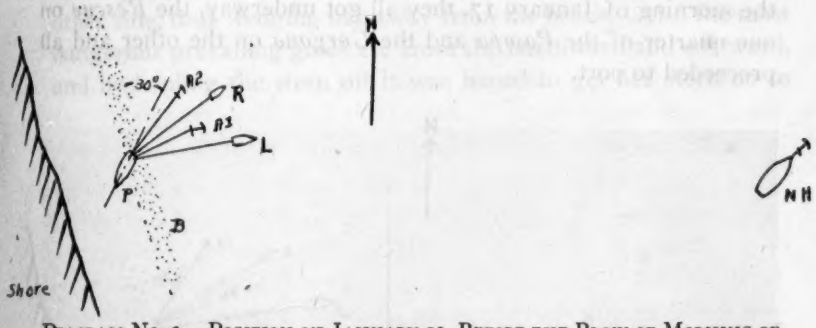


DIAGRAM NO. 3.—POSITION ON JANUARY 11, BEFORE THE BLOW OF MORNING OF JANUARY 12.

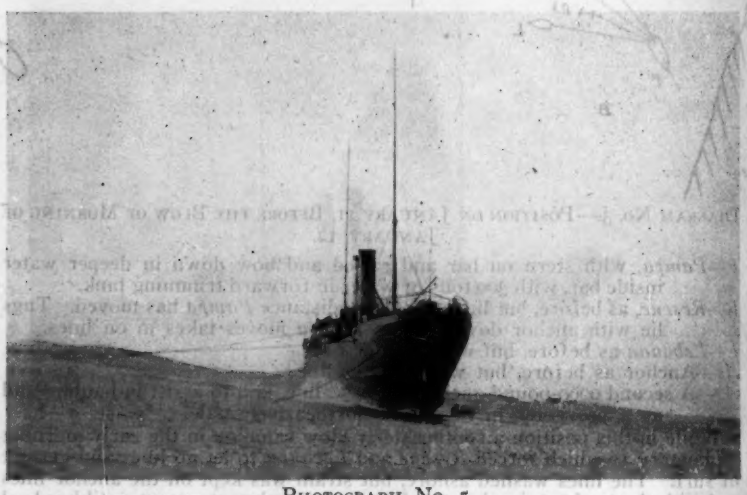
P—*Pampa*, with stern on bar and raised and bow down in deeper water inside bar, with 300 tons of water in forward trimming tank.
R—*Rescue*, as before, but line shorter by distance *Pampa* has moved. Tugs lie with anchor down and as *Pampa* moves takes in on lines.
L—*Lebanon* as before, but with shorter line.
A1—Anchor as before, but with shorter line.
A2—A second 9000-pound anchor with 15″ line, laid to assist in hauling and as a preventer in case of a northeasterly gale.

While in this position a southeasterly blow came on in the early morning of January 12 which forced *Rescue* and *Lebanon* to let go lines and get out of surf. The lines washed ashore, but strain was kept on the anchor lines and with the surf moving her the *Pampa* swung her stern out until her keel made an angle of 45° with axis of bar, and moved about 125′ to position shown on next diagram. Blow was of short duration, but afternoon of January 12 and most of January 13 were spent in running lines for tugs again and in replacing anchors, *A2* having dragged home under strain.

On January 13, anchors were relaid, lines readjusted, etc., and the situation was then as shown in Photograph No. 5 and Diagram No. 4. The *Pampa* was at this time on top of the bar and soon came on an even keel in trim, her stern being then in 12′ of water. From this point the hauling was "down hill," and water ballast was shifted from forward to aft, and strain was kept continuously on the anchors and at favorable tides by the tugs, which work continued until the morning of January 16, when, at 9 a. m., the ship came clear.

During the operation the normal rise of tide seemed to be about 2′, but with strong, westerly winds it was reduced much below that, which was of course an additional drawback.

As soon as the *Pampa* came off the *Lebanon* took her in tow and started with her for port. The *Gorgona* towed astern of the *Pampa* and did the steering, to replace the *Pampa's* lost rudder. The *Rescue* picked up her wrecking anchors and rejoined, and in the early evening the ships all anchored in sheltered water. On the morning of January 17, they all got underway, the *Rescue* on one quarter of the *Pampa* and the *Gorgona* on the other and all proceeded to port.



PHOTOGRAPH No. 5.

Summarizing the facts in regard to this method of salvage it may be said that the problem was to take a large ship very high out of water, broadside practically against the shore, on a gravel beach, and haul her out through the gravel into deep water, the problem being made more difficult by the fact that she was inside a gravel bar having not more than 7′ of water on it at high tide. The description, sketches, and photographs given show the several steps. The sketches do not pretend to be exact as to scale, and in fact show the bar rather farther off shore than it really is.

The only possible way of doing the work was thought to be to get hold of one end of the ship and haul it around into such posi-

tion that we could get a straight haul along the keel line. The northernmost end (finally the stern) was selected because it was already canted out about one point from the coast line, and also because when the current is strong, with northerly and northeasterly winds, it runs down the beach from north to south. There is rarely much northerly set at this time of year. When so running it was expected that this current would pack the gravel in between the ship and the beach, at the same time washing it away from the other side, thus wedging her away from the beach. Also the most dangerous prevailing gales are from the northward and eastward, and by hauling the stern off it was hoped to get her stern on to

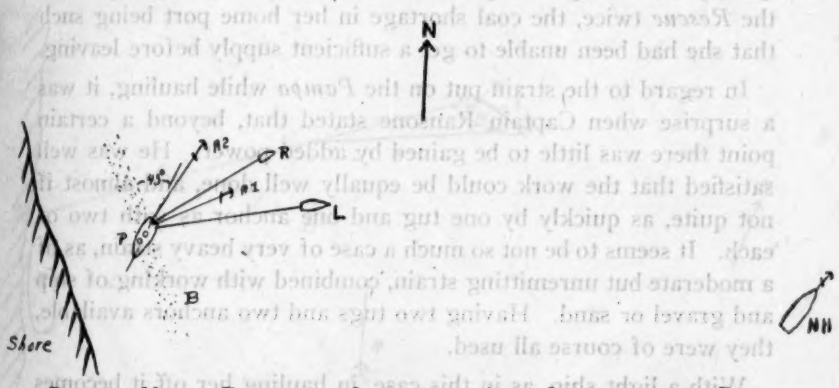


DIAGRAM NO. 4.—POSITION ON JANUARY 13, AFTER LINES HAD BEEN RERUN, ANCHORS RELAID, ETC., FOLLOWING BLOW OF JANUARY 12.

P—Pampa, setting on bar, with stern just outside it, and inner edge of bar under forward funnel, with keel at angle of 45° with axis of bar. Stern over about 12′ of water.
R—Rescue, as before, with line rerun.
L—Lebanon, as before, with line rerun.
A1—Anchors as before, but relaid.
A2—Anchors as before, but relaid.

any probable really dangerous storm and hold her thus end on to it by the anchors laid outside the surf.

Having the anchors once planted, with the tugs hauling in the same general directions, all that was necessary was to keep a steady strain and wait until the effects of current, sea, and working of ship should work her through the gravel into the deeper water that lay about a ship's length outside the bar.

There were several points in connection with the work that are worthy of comment, one being the fact that throughout it was

necessary to keep putting coal aboard the *Pampa* whenever the sea would permit, her coal supply being very short, and power for her winches being an absolute necessity. This was done by sending in from three to five tons at a time in bags in the 40′ motor sailing launches. A total of about 20 tons was put aboard her. Even in the smoothest weather there was enough surf to make this service very difficult and very hard on the boats, especially when the landing had to be made on the offshore side of the *Pampa*. After her stern had been hauled out the boats could get around inside her and she furnished a lee, although the boats not infrequently touched in the surf in getting in. We also had to coal the *Rescue* twice, the coal shortage in her home port being such that she had been unable to get a sufficient supply before leaving.

In regard to the strain put on the *Pampa* while hauling, it was a surprise when Captain Ransone stated that, beyond a certain point there was little to be gained by added power. He was well satisfied that the work could be equally well done, and almost if not quite, as quickly by one tug and one anchor as with two of each. It seems to be not so much a case of very heavy strain, as of a moderate but unremitting strain, combined with working of ship and gravel or sand. Having two tugs and two anchors available, they were of course all used.

With a light ship, as in this case, in hauling her off it becomes necessary to watch the question of stability, as many merchant built ships are very lacking in stability when empty, and when only partly water borne may develop a danger heel or perhaps capsize. This may also happen after floating clear. So it is necessary to watch this point, and if needed to admit water ballast as she moves off the shoal.

A procedure of great interest, which it did not become necessary to use in this case, however, was described by Captain Ransone to the writer, and is shown on Diagram No. 5. This is employed when the tug is hauling on a line from a stranded ship, when circumstances do not permit the tug to keep her anchor down while at work, and yet some device is necessary to keep the tug from being set down sideways by wind, current, or sea, perhaps into the breakers. By rigging a bridle as shown on the diagram, and by hauling or slacking on it as requisite, the tug may be steered and

made to steam against the current, etc., as may be necessary to keep her in proper position.

Some words may also be of interest in regard to the organization employed by the wrecking company in such a case. They have two masters aboard the tug, a tug master, in this case Captain Ransone, and a wrecking master, Captain Carlson. Upon reaching the ship to be salvaged Captain Carlson goes aboard her with a sufficient force (in this case about a dozen men) and takes charge of the work there, being in direct charge of all operations; Captain Ransone having charge of handling the tug as necessary. As

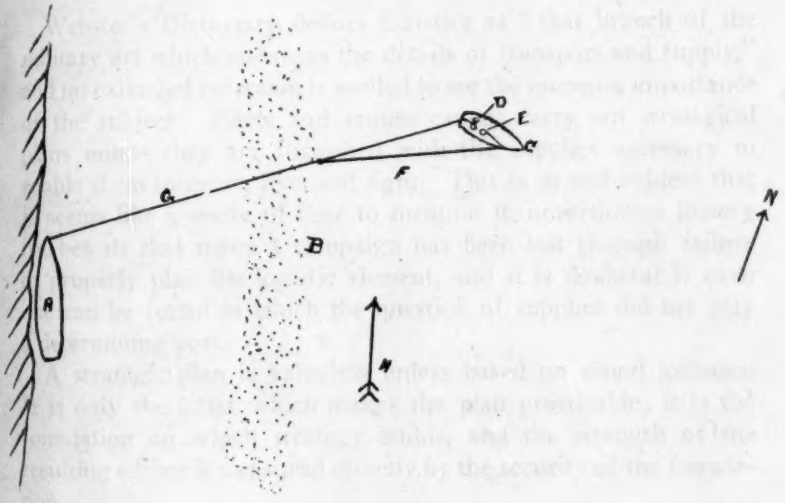


DIAGRAM NO. 5.

A—Ship aground.
B—Breakers.
C—Tug.
D—Towing bitts.
E—Capstan or windlass.
F—Bridle from windlass led through bow chock on proper side and made fast to tow rope about 20 or 30 fms. from stern of tug.
G—Tow rope.
H—Arrow showing set of current.

soon as the ship floats, however, Captain Ransone assumes charge and responsibility. It is evident that this is a case where team work and cooperation are highly necessary, and they could be found in no higher degree than in this particular instance. Both Captain Ransone and Captain Carlson are men of the highest type. They are experienced wreckers, most competent and bold seamen, and

furthermore most excellent men with whom to carry on work. Their cooperation and general attitude throughout were perfect. They gave freely, fully, and without reserve of their knowledge, experience and effort, and with the well-designed and equipped *Rescue* and her gear, were the main reliance in accomplishing this work.

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A COMPARISON BETWEEN THE LOGISTICS OF ARMIES AND FLEETS[1]

By MAJOR ROBERT E. WYLLIE, C. A. C.

Webster's Dictionary defines logistics as "that branch of the military art which embraces the details of transport and supply," and no extended reflection is needed to see the immense importance of the subject. Fleets and armies cannot carry out strategical plans unless they are furnished with the supplies necessary to enable them to move, live, and fight. This is so self-evident that it seems like a waste of time to mention it, nevertheless history teaches us that many a campaign has been lost through failure to properly plan the logistic element, and it is doubtful if even one can be found in which the question of supplies did not play a determining part.

A strategic plan is valueless unless based on sound logistics. It is only the latter which makes the plan practicable; it is the foundation on which strategy builds, and the strength of the resulting edifice is measured directly by the security of the foundation.

From a strategic point of view this country occupies an insular position, in that practically all military operations against foreign nations involve the use of the seas. Our only neighbors are Canada and Mexico. The former would be supported by troops brought overseas from Great Britain, and major operations against Mexico can only be carried out from such ports as Vera Cruz, Tampico, etc. Northern Mexico is too barren and difficult for large bodies of troops. The importance of amphibious warfare to this country is self-evident. Following up this line of thought it might be well to compare the logistics of land and naval forces,

[1] This article was written in January, 1916. Reprinted by courtesy of *The Journal of the U. S. Artillery* from the September-December number, 1917.

and then take up the logistics of a combined overseas expedition. The strategy of the two services is essentially the same, but their logistics afford some interesting differences, so that a thorough appreciation thereof is essential when planning combined operations, and inasmuch as we are usually prone to neglect the logistics of even our own service, ignorance of the logistic requirements of the other can be expected as a general thing.

The first necessities of both fleets and armies are food, clothing, ammunition, and personal equipment. These are needed to keep the fighting forces ready for action. It is also evident that they must be supplied from some secure points or bases and must be safely delivered to the combatant units. The element of security, so essential for a base, requires that it be in our own territory, in order that it can be properly stocked and fortified during peace.

We now come to a distinction between land and naval forces. Assuming offensive movements, without which no decisive results can be expected, land forces invading an enemy's territory must have temporary bases nearer the front than the main depots in their own country, from which supplies can be delivered to the units at the front. A few figures will be given to render this thoroughly comprehensible.

A division is the smallest normal body of troops containing all arms, and it is the basis of army organization. In our service it contains approximately 24,000 men, 72 guns, 9000 animals and 1000 vehicles (including ammunition caissons).[2] The wagons carry ammunition and the supplies needed for five days. The length of a division in road column without distances is about 16 miles, of which the wagons take up almost exactly half. In other words the supplies for five days occupy as much road space as do the combatant units. Assuming that the wagons are mule-drawn, that the roads are good, and that nothing can be obtained from the country itself, the division cannot advance more than about 30 miles from its immediate base, or refilling point, or the rate of consumption will become greater than the rate of supply. Even this figure will be decreased if more than one division is supplied over the same road. It will also be noted that this presupposes good roads, and even the best will soon be cut up by such a large amount of heavy traffic.

[2] Old tables of organization.

This immediate base is called an advance depot, and is usually a railhead, though motor truck trains can be used when available to extend the depot beyond the railhead, but the limit is soon reached even with motor trucks.

The absolute dependence of an army upon its line of communications, through the advance depot and railroad to the home bases, is thus evident. An advancing army literally lives from day to day, and the immediate rear is filled with supply wagons, hurrying to and from the railhead, and the latter must be pushed forward with all possible rapidity if the advance of the troops is not to be retarded.

The security of this line of communications is evidently vital. Every day's march into hostile territory requires more combatant troops to guard the transportation of supplies, and to provide for the restoration of order and the governance of the occupied region, and this soon becomes an immense drain on the fighting forces. In 1812, Napoleon crossed the Niemen with 363,000 men, and arrived at Moscow with but 95,000, leaving 118,000 to guard his line of communications, 550 miles in length,[3] and we all know that it was the weakness of that line which was the real cause of his discomfiture in that campaign. In 1870, the Prussians arrived before Paris with 171,000 men, leaving 254,000 in their rear to the Prussian border, 210 miles away. In this case the line of communications was secure, but it required an immense number of men, compared with the troops at the front.[3]

Not only must the needs of the combat troops be met, but the requirements in the occupied territory are enormous. We have already seen that supplies of food, clothing, ammunition, and personal equipment are needed by all services, but along the line of communications, and in the occupied region, there will be much more. The railroads must be repaired, kept in condition and operated, and perhaps new lines constructed. Behind the present lines in France is a network of new narrow gauge roads constructed since trench warfare began. During Kitchener's expedition to Khartum the railroad was pushed along behind the troops, new construction, at the rate of two miles a day.[4] The present British expedition across the Sinai peninsula into Palestine has been rendered possible only because of the railroad which

[3] Yorck's "Napoleon as a General."
[4] MacDonnell's "Military Geography."

they are building as they advance. It is very evident that large supplies of engineering and railroad material are involved. The roads must be kept in condition for the heavy traffic which uses them; telegraph and telephone service must likewise be kept going, and probably extended; hospitals are established and supplied; there will be a constant stream of travel going each way; reenforcements, recruits, remounts, going to the front, wounded to the rear. To reduce the number of men required for defence, all positions of importance must be artificially strengthened. This requires lumber, barbed wire, tools, etc., in quantities depending on the extent of the defences. Shops will be established, when possible, for the repair of artillery, machine guns, small arms, etc. The government of the territory must be provided for, and the transportation of civilians therein, not to mention the supplies necessary for them, in food, clothing, shelter, medicines, etc., which may not be locally procurable owing to the devastation wrought by war. It is obvious that no general estimate can be made of logistic requirements in this direction; it depends entirely on circumstances. Even if new work (such as new railroads, new roads, construction of defences, etc.), and what might be called the civil requirements be omitted, and only the necessities of strictly military maintenance be considered, it is very indeterminate, so much so that a set of estimates made by capable officers of the amounts to be transported along the line of communications, varied from 20 to 50 pounds per man per day. Probably 30 pounds can be taken as an average for this study.

Now, taking the naval side it will be seen that the differences that exist between the logistics of land and sea warfare are marked, as soon as the primary requirements of food, clothing, ammunition, and personal equipment are passed. Whereas an army lives from day to day on its line of communications, a fleet can carry several months' supplies of those important commodities, it is self-sustaining, so far as they are concerned, for long periods of time, so much so that were it not for the question of mobility, a fleet would hardly need a line of communication at all.

Mobility, however, is of vital importance; a fleet is valueless without the power to move, and this requires: (1) fuel, (2) docking and repair facilities.

The need of fuel is obvious and it is the feature which controls the distance that the fleet can operate from its refilling point. We have seen that food requirements limit the advance of an army to a distance of about 30 miles from its advance depot; that may be called the radius of action of a land force. The radius of a ship is determined by the amount of fuel it can carry. No rule can be laid down for a fleet, because the radii of its units vary so greatly, so much depends on the kind of vessels, and the projected operations. However, a refueling point within the theatre of operations is just as essential to a fleet as is an advance depot for an army. A few facts as to the quantities of fuel involved will now be given, in order that they can be compared with the army needs.

It has been estimated that our present Atlantic fleet would require over 200,000 tons of coal, and 60,000 tons of fuel oil every month on active operations, and this means that, when supplied from an advanced base in the Philippines, about 160 ships, with an average gross tonnage of 5000, would be needed to keep up the supply from home ports. The food for the fleet amounts to but 3500 tons per month. This comparison will probably give the soldier a better idea of the immense quantities of fuel required than could be given in any other way. In fact 10 ships will probably be enough to keep up the supply of food, clothing, and all other naval stores needed for the fleet in the Philippines and for the bases oversea.

The second essential, docking and repair facilities, is not so well appreciated outside of naval circles. Ships on active service require frequent overhauling and repairs, and docking is essential for this purpose. Repair vessels accompany a fleet as part of the train, but extended work from them is not possible. Work of this character must be done in port. The deterioration in mobility and fighting strength of a fleet without access to docking and repair facilities is so great that no navy could consider such a condition of affairs. This requirement means that a base is needed for the fleet, and it must have (1) a good strategic position relative to the theatre of war, and to the lines of communication with home ports, if it is in distant waters; (2) it must have strength, in order that it can resist the efforts of the enemy to capture it; and (3) resources, the docking and repair facilities required, a harbor of sufficient size, the necessary labor and supplies.

A consideration of these three requirements shows that such a base cannot be made in a day. It is very different from a mere refueling or refilling point. It must be prepared in time of peace. Comparing it with an army base it resembles the home depots, while the advanced base or refueling point, is similar to an army advance depot or railhead.

A naval advanced base affords a fairly secure shelter for the fleet in the intervals between active operations, and stores of food, fuel, and ammunition can there be replenished; for more than that it must return to a well equipped permanent base, such as described above.

It follows that reasonable preparedness demands that permanent bases be selected, equipped, and fortified, in time of peace, as near the probable theatre of operations as our territory permits. If such bases are secure the fleet will not be under any anxiety regarding them, and can conduct its campaign with the knowledge that its logistics has been amply provided for.

In the security of a line of communications, including the bases, there is a vast difference in the land and naval problems. As just shown, a fleet is really not charged with the security of its own bases. No portion of the sea-going fleet is (or should be) tied up in the defence of any locality. Obsolete vessels can be well utilized in such a manner, but it is contrary to all strategic principles to so employ any vessel which can be utilized for offensive operations at the front. The defence of a base rests with land forces and with the offensive activities of the fleet.

Supplies for the fleet passing along the line of communications are not confined to roads. There are no set paths for them to traverse, and distances, in the general case, are great. Further, large quantities of supplies can be conveyed at a time (when compared with the capacity of a wagon train), so that the condition of a naval line of communications is vastly different from that existing in the rear of an army. In one case we have isolated groups of ships passing over large areas, along routes that can be varied at will; in the other case, a continual stream of supplies along roads which are as well known to the enemy as to us. The difference is so marked that a soldier can be excused for saying that a fleet has no line of communications in the army sense.

The natural difficulties which an enemy would encounter in making a raid on a naval line of communications are immeasur-

ably greater than a similar operation on land, and from this it follows that a very small proportion of the fleet is needed to guard the line of communications, while we have already seen how greatly an army is denuded for this purpose. It is undoubtedly true that no complete parallel can be drawn between land and naval lines of communication, and if the effect of logistics in land strategy is applied directly to naval warfare, the result will be fallacious.

The fleet has no problem similar to that which confronts an army in occupying and governing enemy territory; on the other hand we must remember that this entire discussion of naval logistics presupposes good and sufficient bases, well protected and prepared. If this is not the case the fleet is practically helpless for the prosecution of its proper offensive operations, as it is tied to such base as it may possess, in a manner very similar to that of an army, but without the latter's opportunities for action. The security of the base is then an ever-present problem; in the face of superior forces the fleet cannot protect it, neither can the base protect the fleet. At the same time the fleet is not able to attempt anything else. If the enemy is inferior, the fleet by its presence will hold the base, but that will be of no value strategically. The base should exist for the fleet, not the fleet for the base.

In other words if the question of bases has been properly attended to in time of peace, the logistics of a fleet in war is a simple matter compared with that of an army (this means, of course, so far as its effect on strategy is concerned), but if those precautions have been neglected, the fleet is practically helpless, and its power nullified; while in land operations logistics is a war problem, pure and simple, nothing can be done in time of peace (except to collect supplies), not even for a defensive campaign in our own country. An army commander can never be free from the logistic problem, while with proper preparedness, logistics should have no deterrent effect on naval strategy. This is the essential difference between the two services, and its effects are so important that every advantage should be taken in time of peace to secure this great advantage tc the fleet.

Let us now consider the logistic requirements of a joint overseas expedition. For example our fleet operating in Far Eastern waters, with an advanced base in the Philippines, getting all supplies

from home ports, and a land force of 100,000 men of all arms sent to recapture Luzon, or to undertake an expedition against enemy territory. This force will be too small, in all probability, for such a purpose, but it is a convenient figure to handle, and will give an idea of the problem involved.

We have already seen that to maintain the fleet under these conditions will require fuel ships with a gross tonnage of about 800,000, and 50,000 tons for other supplies, as follows:

	Carrying capacity	Gross tonnage
Colliers	925,000	670,000
Oil Tankers	172,000	137,000
Other supplies	60,000	50,000

In addition to these items the navy would probably require the following merchant ships upon mobilization:

For	Ships	Gross tons[5]
Fleet Scouts	8	65,885
Train	30	161,440[6]

Now let us consider the army needs in transports. The army generally uses the following figures in estimating the amount of tonnage required for an expedition: for gross tons per man, nine per animal, 10 per gun or other vehicle. Assuming a force with the different arms proportioned as in a normal division, and reducing the above figures to terms of men, we find that seven gross tons is required for each man, and this figure will include the necessary animals, guns, vehicles, and supplies for two months. This is based on the use of vessels larger than 3000 gross tons, which is the smallest size considered suitable for a transport, and it should be noted that the British are using their very largest ships for this purpose in the present war, even in the short cross-channel traffic. This means 700,000 gross tons. To this must be added 15 per cent, say 100,000 tons, in order to preserve the integrity of units. It is most important, when disembarking, that each ship carry a complete unit. This makes a total of 800,000 gross tons for the troops.

[5] Gross tonnage must not be confounded with displacement. It is determined by dividing the entire internal volume of the hull expressed in cubic feet, by 100. The cargo capacity, or net tonnage, is the volume of cargo space expressed in cubic feet, divided by 40, and, as shown, it is usually greater than the gross tonnage.

[6] The figures on our merchant marine given in this article are from a carefully compiled list, corrected to December, 1916.

We have also seen that to maintain a force in land operations requires a daily supply of at least 30 pounds per man; therefore to keep this army, together with the bases en route (Honolulu, Guam, and the advanced base), will require about 70,000 tons per month, allowing for the time required for the round trip from home ports, and this means a gross tonnage of about 180,000. However the force is supplied for two months, so not more than a third of that 180,000 will be needed before the return of the empty transports will give plenty of shipping to choose from, so we can estimate that the army needs 860,000 gross tons of shipping, no vessel to be smaller than 3000 tons.

However this does not cover our full needs in shipping. In addition the navy will require more scouts. Our scouting force is very weak, and when the long line of communications from this country to the Orient is considered, the need for fast scouts is evident, it would be impossible to have too many. Furthermore, district scouts are necessary, smaller ships to patrol the waters round our coasts and in the vicinity of the bases. Naval mine planters and submarine tenders constitute another need which must be met; also cable and hospital ships for both services and other miscellaneous ships. Harbor patrol vessels, army mine planters, etc., need not be considered because they can be taken from vessels smaller than 3000 tons, and therefore will not interfere with deep sea requirements.

These items cannot well be calculated. All we can do is to bear in mind that they must be supplied, and compare our merchant marine with the requirements that we have reduced to figures.

Use	Required gross tons	Available shipping gross tons
Scouts and Train	227,325	227,325
Colliers	670,000	844,743
Oil tankers	137,000	584,807
Transports, and A. & N. supplies	910,000	512,944
Total	1,944,325	2,169,819

The entire ocean merchant marine of the United States (December, 1916) is included under the heading "Available Shipping," except that vessels under 3000 tons are not included on the transport line, while colliers and oil tankers are carried down to 2000 tons.

This table shows that our merchant marine is able to supply vessels suitable for colliers with a surplus of 175,000 tons. There is a large excess of tankers, but such a vessel unfortunately cannot be used for any other purpose, so this excess cannot be employed to cut down the large deficiency that exists in the transports. Assuming that the excess in colliers, 175,000 tons, can be employed as transports and supply vessels, the net deficiency in that class is 212,000 tons, and it must be remembered that the miscellaneous requisites of extra fleet scouts, district scouts, etc., are not yet provided.

It will also be noted that no surplus has been allowed to replace the losses which will inevitably occur by stress of weather and by hostile operations; neither is there any excess to permit of the periodical repair and overhauling which all vessels need.

Then too we may well give thought to the economic condition of the country if its entire merchant marine were suddenly diverted to the use of the army and navy.

There is no exaggeration in these figures. Every effort has been made to keep them down to the lowest terms consistent with the assumptions, and the experience of Great Britain in the present war gives point thereto. In 1914, her merchant marine totalled a little over twenty million tons, and, according to recent accounts, which are probably fairly accurate, about eight million tons is being used for strictly military purposes, and this huge amount is needed notwithstanding the fact that the grand fleet is operating from home bases, and that the bulk of England's army is just across the Channel, only 20 miles wide, while we have been calculating on an offensive 7000 miles from our home ports.

So far as the logistics of our fleet and of an overseas expedition are concerned, the lessons I derive from this study are, (1) the necessity for improving and fortifying bases in all probable theatres of operations, and (2) the great importance of developing our merchant marine.

We will refer to the example of England, a country which for three hundred years has been supreme at sea. Her naval history is an almost unbroken record of success. She has a chain of bases round the world in almost every conceivable direction. There is no part of the globe that does not possess a British naval base; and 46 per cent of the world's merchant marine is under her flag. While it would be rash to draw the conclusion that her naval success is due to these two facts, we can at least feel sure that they made that success possible.

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THE NAVY AND FILIBUSTERING IN THE FIFTIES

(CONTINUED)

By LOUIS N. FEIPEL

II. LOPEZ' SECOND EXPEDITION AGAINST CUBA

Lopez, undaunted by this first mishap, travelled through the southern and southwestern states, secretly enlisting men and making provision for another expedition to Cuba. In April, 1850, the first detachment under Colonel Theodore O'Hara succeeded in sailing from New Orleans, on board the sailing vessel *Georgiana*.[1]

The *Susan Loud* (also a sailing vessel), carrying a second detachment, sailed from New Orleans early in May. Both vessels were joined at the island of Contoy, off the coast of Yucatan, by Lopez with 450 followers, on board the steamer *Creole*. The whole command then sailed away for the shores of Cuba.

Representations to this effect having been made to our government by the Spanish minister at Washington, the Secretary of the Navy issued the following orders to Commodore Parker, commanding the Home Squadron, who was then in Washington:

[Confidential.]

NAVY DEPARTMENT, May 15, 1850.

SIR: Though the government has no precise information, yet it has been informed from sources entitled to great respect and consideration, that a military organization has been effected in the interior of the United States, formidable both in numbers and from the character of those engaged in it, for the purpose of attacking the island of Cuba, and of revolutionizing the government. This force is represented to consist of between 6000 and 10,000 troops, of the best kind and material to

[1] The *Georgiana* seems to have been suspected by the United States revenue cutter which was cruising in the offing, but the government vessel contented itself with sailing around the bark two or three times, and then went away.—Caldwell, "Lopez Expeditions," p. 59.

render the assault formidable, and, as it is believed, is sufficient, with other means and resources at command, to emancipate Cuba from Spanish rule. Large numbers of those engaged in the enterprise departed, as it is alleged, from the city of New Orleans, accompanied by Generals Lopez, Gonzales, and others. It is represented that they expect to effect a landing upon the island about this time. All accounts concur in representing that it is a military expedition or enterprise begun and set on foot within the territory or jurisdiction of the United States, to be carried on from thence against the island of Cuba and the government of Spain.

Any such invasion of that island is in violation of our obligations of neutrality to the government of Spain.

The government of the United States is bound to respect the rights of the inhabitants of Cuba and of the government of Spain, and "no person is permitted, within the territory or jurisdiction of the United States, to begin or set on foot, or provide or prepare the means for, any military expedition or enterprise to be carried on from thence against the territory of any foreign prince or state, or of any colony, district, or people."

You are therefore directed by the President of the United States to despatch forthwith such of the vessels of the Home Squadron under your command, as may be within your reach, to the port of Havana, in the island of Cuba, where they will vigilantly and actively, in co-operation with Captain Tattnall, of the steamer *Saranac*, observe the movements and operations of all vessels approaching the harbor of Havana or the island of Cuba, for the purpose of ascertaining whether any military expedition or enterprise has been begun or set on foot, or any means provided, to be carried on from the United States against the territory or domains of Spain.

Should they ascertain that such hostile movement is on foot and is proceeding against the island of Cuba, they will use all proper means in their power to prevent a landing or the carrying out such expedition or enterprise, so as to avert and prevent the violation of our obligations of amity and peace with Spain.

Should the expedition from the United States have effected a landing, and a revolution be in progress, they will prevent the landing of any reinforcement or of any arms or provisions under the American flag.

To the citizens of the United States who may be there in the prosecution of their peaceful and lawful pursuits, and who may apprehend danger either to their person or property, they will extend the protection and aid to which they are entitled as American citizens.

Should they, upon their arrival at Havana, ascertain satisfactorily that no such expedition is on foot, they will return to the Atlantic States to prosecute the future orders of the Commander-in-Chief of the Squadron, in the mean time keeping the Department fully informed of all occurrences in connection with duty assigned to them.

I am very respectfully,

Your ob't servant,

W. BALLARD PRESTON.

COM. F. A. PARKER,

Com. Home Squadron, Washington.[2]

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[2] Senate Exec. Doc. No. 57, 31st Cong., 1st Sess.

Similar orders were sent to Captain Josiah Tattnall, commanding the steam frigate *Saranac;* to Captain Isaac McKeever, of the frigate *Congress;* to Commander V. M. Randolph, of the sloop-of-war *Albany;* to Commander Charles Lowndes, of the sloop-of-war *Germantown;* and to Lieutenant James H. Ward, commanding the steamer *Vixen.*

Some 19 armed vessels of the Spanish Navy were at that time coasting around various parts of Cuba to intercept the reported expedition. These vessels, according to the report of Consul Campbell, at Havana, were regarded as lacking in efficiency, and incapable of preventing the invaders, if coming in steamers, from effecting a landing.

As we have seen, the expedition had already departed from the United States. The three vessels had on board 650 men, with arms and ammunition. After getting to sea, the vessels proceeded to the island of Contoy, off the coast of Yucatan, after which the expedition was headed for Cardenas, on the coast of Cuba. The *Creole* reached Cardenas at 3 o'clock on the morning of the 19th of May, landed and took possession of the town, and burned the governor's palace, taking him prisoner after a battle in which 50 of the Spanish troops and 30 of the invaders were killed. The expedition then re-embarked and made for Key West, closely pursued by the Spanish armed steamer *Pizarro.* The *Pizarro* had a few days previously captured the two sailing vessels of the expedition off Contoy.

On the 21st of May, as the United States schooner *Petrel,* Lieutenant John Rodgers, commanding, was engaged in surveying duty, and standing across the Florida Reef, near the West Sambo, off Key West, she discovered the *Pizarro* with a signal flying for a pilot, while the *Creole* was in the distance hull down inside the reef. As there was no pilot-boat in sight, Rodgers determined to send his own pilot on board the *Pizarro* to bring her into Key West. When the *Pizarro* came near, the *Petrel* hove to, and an officer from the Spanish man-of-war came alongside and informed Rodgers that the other steamer (the *Creole*) was a pirate, and that General Armero, who commanded the *Pizarro,* wanted a pilot, in order to take the said pirate. Rodgers at once surmised that the *Creole* was part of the frustrated filibustering expedition. But it was by no means clear to him that it was any part of his duty to furnish a pilot to enable a foreign man-of-war to take American

citizens, in American waters and under the American flag, running into one of our own ports. He even decided that if an opportunity arose, it would rather be his duty to interpose the sides of the *Petrel* to the Spaniard's fire, and take possession himself of the American steamer, to be delivered over for legal action to the authorities having jurisdiction in the waters where she was found.

Rodgers sent a pilot to bring the *Pizarro* into Key West, directing the pilot, however, on account of the quarantine regulations, not to go on board, but to pilot the *Pizarro* from one of the *Petrel's* boats (as was the custom in foreign ports), and to take her nowhere except into Key West. The pilot could not understand Spanish, nor the Spaniards, English. The pilot told them to steer northwest, and they kept the *Pizarro* northeast, and were soon running on a shoal with nine feet of water on it. The pilot and the Spanish captain both became flurried, and finally the pilot-boat was cast off and returned to the *Petrel*. At this juncture, Rodgers himself went on board the *Pizarro* and offered to pilot her into Key West. The offer was refused, General Armero declaring that by not furnishing him with a pilot, Rodgers had prevented him from taking a pirate—that an officer had, under the Spanish flag, assured Rodgers of the piratical character of the *Creole*.

As Rodgers was departing, the general sent to ask the name of the vessel which he commanded. Rodgers replied to the officer that he had first sent a pilot, and the Spaniards not understanding him, Rodgers had come on board himself to pilot the vessel; that the general, in return, had not been entirely civil, and that he must find out the name of the vessel as best he could. Rodgers gave this message successively to two officers, each of whom apparently hesitated to deliver it; and the general, who had evidently heard the conversation, came himself to where Rodgers stood. With a manner changed decidedly for the better, he then said that he would have to report the facts to the United States Government.[3] Rodgers thereupon gave his own name, as also that of the *Petrel*, to the general, in writing.

Meanwhile, the *Creole* ran into Key West, made fast to a wharf, and her people delivered themselves over to the civil authorities.

[3] In transmitting these facts to the Navy Department, Rodgers reported "for official discourtesy to me while in the execution of a civility to his flag, the Spanish General of Marine on board the *Pizarro*."

Rodgers proffered the services of the officers and crew of the *Petrel,* numbering 18 men, for whatever aid they could furnish. They were the only force, either military or naval, in the place. On the requisition of the United States marshal, the *Petrel's* men aided him in taking possession of the *Creole.* Also, at the request of the mayor of Key West, Rodgers seized, and received on board the *Petrel* for safekeeping, 401 muskets and 700 sabers. The 600 men on board the *Creole* were assigned quarters in the vacant United States barracks at Key West. General Lopez, the commander of the expedition, was among them. However, he was soon set at liberty, in spite of instructions to the contrary given to the District Attorney of Savannah. Seven negro slaves, who had been brought over in the *Creole,* were temporarily committed to jail by the mayor of Key West, to await the pleasure of the President of the United States in the premises. They were subsequently claimed by the Spanish vice-consul on behalf of their owners—Spanish subjects resident in the island of Cuba—and surrendered to him to be conveyed again to Cuba by the *Pizarro.*

This expedition of 1850, and the attempts of the United States Government to circumvent it, had already been a prolific source of embarrassment to the administration. On May 20, the newspapers had denounced the action taken by the President in sending war vessels to try to prevent the expedition from landing, or at least to cut off supplies and reinforcements coming from the United States. This action was likewise made the ground for a bitter attack in Congress by Senator Yulee, of Florida. Yulee said he was doubtful whether any such expedition were contemplated. If it were, he did not believe it to be clearly illegal under the neutrality act of 1818. He said that the administration showed a desire to usurp powers which the Constitution never gave it. It (the administration) intended to deprive persons of life, liberty, and property, without due process of law. In attempting to keep provisions from reaching the island, the President was himself breaking our laws of neutrality by taking the part, in a foreign territory, of one belligerent against the other. The President had even gone so far as to make war without the authority of Congress. The government seemed to Yulee—as to a very large number of Americans—to be taking the side of despotism against liberal progress. Senator Yulee defended the filibusters, saying that they

were acting under "their personal civil right of emigration and expatriation."[4]

This remarkable speech called forth a masterly reply from Daniel Webster. The senator from Massachusetts reviewed our promises to Spain, which had been repeated through the Executive again and again ever since Jackson's time. We were not only bound by treaties of peace, amity, and good will, but we had repeatedly promised that if Spain would abstain from surrendering Cuba to any other European power, she might be assured of the good offices of the United States to maintain her in possession of the island. Webster held it to be an unquestionable law that American jurisdiction followed the flag, whether that flag floated on the sea, or even in a foreign port. This jurisdiction imposed the duty of protection, not only for the benefit of the United States, but also, in true justice, for the benefit of a foreign country whose peace was threatened. Furthermore, the act of 1818 imposed it as a solemn duty on the President to preserve the peace of the country by suppressing every unauthorized expedition set on foot in the United States against any portion of a country with which we were at peace. Mr. Webster could not regard the clause in the Constitution which safeguarded life, liberty, and property as applying to armed insurrection. He expressed, moreover, the highest confidence in the President of the United States.[5]

The administration had also to deal with a very delicate and important problem growing out of the Cardenas expedition. It will be recalled that the two sailing vessels of the expedition (the *Georgiana* and the *Susan Loud*) had been seized by the Spanish naval forces, on May 18, off the island of Contoy. The 52 men on board these two vessels were taken to Havana for trial, the vessels following with prize crews. But Contoy, lying near the coast of Yucatan, was plainly within the jurisdiction of the republic of Mexico, and therefore the prisoners were not properly amenable to Spanish justice. Many of them, moreover, were doubtless American citizens. The President of the United States, therefore, fearing that the Spanish authorities in Cuba, in their

[4] This view would have justified President Taylor's unfortunate threat, made in his proclamation of 1849, to refuse protection to filibusters as American citizens; and these views also tied the hands of the government when Crittenden and his men were captured in 1851, and later proved embarrassing in the famous case of the *Virginius*. (Caldwell, "Lopez Expeditions," p. 75.)

[5] Cong. Globe, May 21, 1850, Vol. XXI, pp. 1030-5.

excessive zeal to punish the invaders of that island, and all connected with them, while flushed with victory might possibly forget the difference between crime and the intention to commit crime, and thus wreak their vengeance on innocent American citizens, resolved that the American eagle must and should protect them against any punishment except such as the tribunals of their own nation might award. Our consul at Havana was accordingly instructed as follows:

> Tell the Count of Alcoy[6] to send them home to encounter a punishment which, if they are honorable men, will be worse than any he could inflict, in the indignant frowns and denunciations of good men in their own country, for an attempt to violate the faith and honor of a nation which holds its character for integrity of more value and higher worth than all the Antilles together. But warn him in the most friendly manner, and in the true spirit of our ancient treaty, that if he unjustly sheds one drop of American blood at this exciting period, it may cost the two countries a sanguinary war.[7]

And to support this declaration, our consul was instructed to call upon the frigates *Congress* and *Saranac,* and the sloops-of-war *Albany* and *Germantown,* which had been ordered to those waters.[8]

The commanders of the American war vessels had received instructions which compelled them to resist all attempts on the part of the Spanish men-of-war to capture the filibuster ships. Captain Tattnall, in the *Saranac,* as we have seen, had been placed in command of all the American war vessels in those waters; and the administration, apprehending the probable capture of some of the filibuster ships by the Spaniards, and their forcible recapture by the American warships, had instructed Captain Tattnall to act according to circumstances.

On the 24th of May, Consul Campbell addressed a communication to the Captain General of Cuba, requesting that the two captured vessels, together with the persons who had been found on board, be immediately given up, in order that they might be sent to the United States for trial, and the legality of their capture and detention be left to the governments of the United States and

[6] Roncali, Count of Alcoy, was at that time Governor General of Cuba.

[7] Senate Exec. Doc. No. 57, 31st Cong., 1st Sess.

[8] The information received by the Executive Department relative to the above revolutionary movements in Cuba, and the armed expeditions from the United States connected therewith, was called for by the Senate of the United States on May 23, 1850, duly transmitted, and printed as Senate Executive Document No. 57, 31st Cong., 1st Sess.

Spain to be decided upon. The consul's letter was written in the morning, and was about to be sent, when Commander Randolph arrived at Havana in the *Albany*. An interview was at once arranged between Commander Randolph, the consul, and the captain general; and in the hope that this interview would end in the delivery of the ships and prisoners, the consul did not send the letter, but placed it in his pocket, to be delivered in the event of his and Randolph's requests being refused.

At the interview which followed, Commander Randolph told the captain general that he had understood that two vessels, reported to be American, had been captured by the general of marine, together with about 100 men, of whom some 14 had been brought to Havana. The captain general replied that two vessels, with some men, had been captured, and that the Cuban Government had in their possession proofs that those vessels and men were connected with the expedition which left New Orleans for the invasion of Cuba. Commander Randolph then desired to know whether the captured vessels had the American colors flying; whether they were on neutral ground, or on the high seas, or in Spanish waters; whether the men captured were Americans in whole or in part; and whether any overt act had been committed by them upon Spanish territory. The captain general replied that owing to the general of marine's short stay in the port of Havana, he had not received official information of the circumstances connected with the capture to enable him to give answers to the questions propounded to him, but observed that pirates could be captured wherever found, whatever flag or papers they might have.

Commander Randolph thereupon said to the captain general that vessels under American colors could not be stopped on the high seas by a foreign force unless suspicions were entertained of their being engaged in piracy; and then if proper papers were found on board, the vessels and men had to be delivered up to the authorities of the United States. In consequence of this, he accordingly demanded the delivery to him of the two vessels and the men captured by the general of marine, that they might be carried to the United States for trial, which the captain general refused to accede to, saying that he had no jurisdiction over the matter, it being a case which was to be tried by the marine court, over which he had no jurisdiction.

Upon being asked by Randolph for permission to see the prisoners then in the port of Havana, the captain general answered

that he had no authority; that the general of marine, being the judge of the cause, would, if he could, let Randolph see the prisoners. Randolph, thereupon, asked the captain general if he was not the head and chief of the Cuban Government. He answered, yes. He was then told that he was the source from which information ought to be secured, and not from his subordinates.

Commander Randolph and the consul explained to the captain general their views in regard to the policy theretofore pursued by the United States in relation to the right of visit and search, and expressed their opinion that the affair they had been referring to was more serious than his excellency thought, for it might involve the question of war. His excellency, however, thought differently, and said he was personally willing to give all satisfaction, but that he could not give way to threats; and if war was the consequence, he was prepared to meet it, using the expression, *que vengan* (let it come). Commander Randolph and the consul hastened to disclaim any intention of making threats. At the same time, Randolph informed the captain general that inasmuch as he had not been able to obtain any satisfactory information, and was not permitted to see and converse with the prisoners, he would report to his government that two American vessels and several American citizens had been captured on the high seas, or on neutral ground, and brought to Havana as prisoners; and that, in consequence, war virtually existed between the United States and Spain. The captain general replied that Randolph might do as he pleased, but the report would not be correct, for the captured vessels and men formed part of the expedition under Lopez were nothing but pirates, and therefore subject to the law of nations enforced by the power to which the cruiser that captured them belonged.

Thereupon Commander Randolph observed that he would perhaps think proper to address his excellency a note on the subject, and wished to know if it would be received. The captain general answered that if Randolph's letter was in proper terms, it would be received, a copy thereof sent to the general of marine to obtain information, and when that was received, he (the captain general) would be glad to answer Randolph's communciation; also, that he would forward to the Spanish minister at Washington a copy of the correspondence, as it was a subject which had to be arranged by the representatives of the two governments, who alone had diplomatic power.

In the course of the conversation, Mr. Campbell took out and presented to the captain general the letter which he had previously prepared, which his excellency, upon learning the contents, refused to receive, asserting that the consul had merely commercial functions, and therefore had no right to interfere in the matter, observing also that neither he himself, nor the consul, nor Commander Randolph had any diplomatic powers. He moreover tried to persuade Randolph not to do anything more in the business, since he had already done everything which his duty as an officer of the United States required of him, more particularly so as it was in favor of men undeserving of his sympathy, who the year before had abused him for the affair at Round Island.

Immediately after this interview, Commander Randolph and the consul waited upon the general of marine. From him they learned that he had captured the two vessels and some men; that the vessels had no colors flying, and that the men on board (some 60 or 70) were partly Americans; that the vessels and men were on neutral ground, but that, having proofs in his possession that they formed a part of the expedition which had tried to invade his country, he had gone and captured them as pirates; and that some of the men were then in the port of Havana.

The general was asked by Randolph what evidence he had that the vessels and men formed a part of the expedition. The answer was that he had reliable information, corroborated by papers found with the ships, and the men's own confessions. Asked whether force or threats had been used to obtain those confessions, he replied that that was a question which he could not accept. To the question whether the vessels and men had any papers, and avowed themselves to be Americans, the general replied that they had not avowed anything; that when his steamer was seen by them to be approaching, they understood their position and said nothing; that he had not examined the papers; that his stay there was very short, merely long enough to put the captured vessels and men in charge of a sailing vessel of war to bring them into Havana; and that he picked out, and brought in the steamer *Pizarro,* such as he considered leaders.

Commander Randolph then said to the general of marine that he had been informed that two American vessels, having American flags and papers, had been captured, with a number of men on the high seas and beyond Spanish jurisdiction; and he therefore demanded the immediate delivery of the captured vessels and

men to him, in order that he might take them to the United States for trial by his government. The general answered that he had no authority; that the vessels and men had been captured as pirates; that he had proofs of it, and that the laws of Cuba would try them. Randolph then requested permission to see and converse with the prisoners who were in Havana, so as to obtain a fair statement, which request was refused. Randolph then demanded it as a right. The general refused again, observing that as the two captured vessels and the greater part of the men had not yet arrived in port, no declarations had been taken from them; that the summarial proceedings were not finished, and therefore the laws of the country did not permit the prisoners to hold communication with anyone but the court that was to try them; but that after that they would be allowed counsel and all facilities for making their defence. The general also contradicted the rumor that confessions had been extracted from the men by putting the rope to their necks, and added that no judicial investigation had yet been begun, but that the men in conversation had acknowledged that they formed a part of the expedition which, under the command of Lopez, was to have invaded the island. In the end, he admitted also that the captured vessels were American, and the men in part Americans.

Thereupon Commander Randolph and the consul observed to the general that it would be better for him to deliver up the vessels and men; that the laws of nations were plain; that the capturing of the vessels and men on neutral ground was illegal. The case of the Duke d'Enghien, under the empire, was cited by them as a parallel, in order to bring to the general's mind the intense excitement produced in Europe and the world by that outrage. The general asseverated that the cases were not parallel, and that the duke was a gentleman. Campbell observed that the Duke d'Enghien had nothing to lose but his life and his soul (if he was not prepared for death), and the Contoy prisoners were in the same position. Randolph said the only difference was that the duke belonged to the blood-royal, and that these men were obscure citizens. But the general still thought as before, and appeared greatly astonished that the American officers should want to consider the two cases as parallel.

The result of the interview was that the general of marine refused to deliver up the vessels and men, and denied permission to Commander Randolph to communicate with the prisoners then

in Havana. He observed, however, that if Randolph would remain some days longer in port, he and the consul could then have the opportunity to learn the result of the trial and to communicate with the prisoners. But Randolph proceeded to sea at once, determined, if possible, to intercept and retake both the vessels and the prisoners, should they be alone or under convoy of Spanish men-of-war. This the consul and he had agreed he had a right to do under the law of nations, in conformity with the policy of the United States, as set forth by Daniel Webster in the Ashburton correspondence, and under the act of Congress authorizing our men-of-war to capture any vessel which should unnecessarily detain an American merchant ship in the Gulf of Mexico. They believed that these ships were being unnecessarily detained after having been demanded to be sent home for trial and the demand having been refused.

The *Germantown* joined the *Albany* on the following morning. A Spanish frigate kept near the two American war vessels continually. Altogether, the Spanish Government had about 21 warships on the station at that time. On the 25th of May, the *Saranac*, Captain Tattnall, arrived at Havana. Just before his arrival, Tattnall had fallen in with the *Albany*, and had been informed of Randolph's intention. While appreciating the motives and spirited conduct of Randolph, Captain Tattnall deemed it best, under the circumstances, to adopt a different course.

As soon as the *Saranac* came to anchor, Tattnall waited upon the captain general, and informed him that while it was not his desire or purpose to seek a meeting with the Spanish frigates, nevertheless, if he did fall in with them at sea, while they were in the act of convoying the two American vessels, he would certainly attempt the recapture of the ships. So impressed was the captain general with Tattnall's determination, that he immediately gave orders that the captured vessels should not depart from the port in which they then were. Thus was prevented the risk of a collision which might have caused a rupture between the two governments.

Captain Tattnall's conduct was fully approved by the administration at Washington. It is said that his letter, acquainting the Navy Department with his action and the reasons upon which it was based, was handsomely complimented at a Cabinet meeting where it was read, and pronounced a model report. His

reasoning was as follows: The two American vessels, detected in flagrant violation of international law and the President's proclamation, had been captured, were already in a Spanish port, and could not there be molested by United States war vessels. Should they be brought out of the port, however, and be found upon the high seas under convoy of the Spanish frigate which had been ordered to bring them to Havana, Tattnall intended to recapture them. This placed the matter of peace or war practically within the determination of the Cuban captain general. If the *status quo* remained unchanged, the capture of the vessels claiming the protection of the United States would then form the subject of negotiation between the two governments.

On May 30, Captain Tattnall, in company with consul, Judge Marvin, and Collector Douglass, of Key West, called on the captain general and said that he was about to return to the United States, and should be highly gratified to be able to communicate to his government that he had been permitted to see and converse with the Contoy prisoners, as, under existing circumstances, it might do much good and tend to allay any excitement that might exist at home. The captain general replied that personally he had no objection to permit the prisoners to be seen and conversed with, but the law would not permit it; that the prisoners were being treated well, and there was nothing of which they could complain, unless it was their not being permitted to go into the streets; and that the marine court before which their trial was pending consisted of calm and intelligent officers, who would dispassionately weigh the testimony and do full justice. The American officers did not attempt to controvert these statements, and left. Consul Campbell then reported the result of the several interviews to the Secretary of State, and concluded by saying: "Your consul, your naval officers, can do nothing for the relief of the parties; and it is left for the President to adopt such measures as his well-known firmness, patriotism, and devotion to the honor and interest of his country may dictate."

President Taylor accordingly deemed it proper to transfer the duties in regard to the Contoy prisoners to Commodore Charles Morris, of the navy. This officer was made the bearer of a special message from the President to the Governor and Captain General of Cuba. His instructions from Secretary of State Clayton read as follows:

DEPARTMENT OF STATE, WASHINGTON, June 29, 1850.

SIR: The President directs that you proceed, as soon as possible, to Havana, in the war-steamer *Vixen;* that on your arrival there you request an audience of the Governor and Captain General of Cuba, representing to him that you bear a message to him from the President of the United States, of importance to his country as well as your own. On being admitted to his presence, you will demand of him the immediate release of all the prisoners taken at Contoy and without the Spanish jurisdiction. When making this demand in the name and by the authority of the President of the United States, you will repeat to the Governor and Captain General of Cuba the assurance heretofore conveyed to him and his government, that the government of the United States has never ceased to perform every duty enjoined upon it by our treaty with Spain, and that it will faithfully continue in the discharge of those duties so long as the peaceful relations of the two countries shall continue. That the President expects, in return for this friendly disposition and conduct, the strictest observance of the rights of the United States and their citizens from Spain; that he recognizes no right on the part of the Spanish authorities to try and punish the prisoners taken at Contoy; and that he will view their punishment by the authorities of Cuba as an *outrage* upon the rights of this country. Without enlarging upon the grounds taken in making the demand through the consul, of which you are fully informed, the President is satisfied, from the reports which he has received of the evidence taken before Judge Marvin, at Key West, as well as from other information which he deems entirely reliable, that the men taken at Contoy had embarked to go to Chagres, and if any of them had ever designed to invade Cuba, they had repented of that design, and abandoned it. Under these circumstances, the President cannot consent that the lives or liberties of citizens of the United States shall be forfeited, or that the question of the truth of the evidence above mentioned shall be referred to any foreign tribunal.

You will say to the Governor that your mission has been occasioned by intelligence that the demand heretofore made by the consul, Mr. Campbell, in regard to these prisoners, was refused on the ground, among others, that the consul had no diplomatic powers. In reply to the demand made by Mr. Campbell, we learn that he was referred to the Spanish minister in Washington, Don A. Calderon de la Barca, and to the court of Madrid. The views of this government on the whole subject have been fully made known to the Spanish minister residing at Washington, of which he has doubtless fully advised the government at Madrid and the Captain General of Cuba. This government has no reason to suppose that a demand so just and reasonable would not now be acceded to by that minister, who is no less distinguished among us for his humanity than his justice, and who, while zealously on all occasions maintaining and defending the rights of Spain, has never shown himself insensible to the importance of preserving the amicable relations which have so long existed between our respective countries.

As to the reference made by the Governor and Captain General to the court of Madrid, you will say to that distinguished functionary that, in the judgment of the President of the United States, were he to abandon these prisoners to the consequences of the confinement which they must undergo in prison, in such a climate as that of Havana at this season of the year, until a demand could be made upon the court of Madrid and an answer returned, it would amount to a probable sacrifice of the lives of many of them, and a desertion of the duty of this government to protect its own citizens.

The owners of the bark *Georgiana* and the brig *Susan Loud* have exhibited to this department statements to prove the innocence of the captains who chartered those vessels; and you will inform the Governor and Captain General of Cuba that this government expects those vessels to be returned to their owners, with damages for their capture and detention. Those statements confirm the testimony taken before Judge Marvin of the innocence of the prisoners of any intention to invade Cuba; which testimony has, we learn, been fully communicated to the Governor and Captain General.

Should the Captain General refuse to release the prisoners upon your demand, you will then inquire fully into the manner in which they have been treated; their present and past condition; whether any have died, or are sick, and what attention has been paid to them; and what is that evidence upon which the Spanish authorities rely to establish their guilt. For this purpose you will demand admittance to all the prisoners in the presence of the American consul, and upon your return you will make a full report on all these subjects.

You will also respectfully request of the Captain General all the testimony which he has obtained, to enable this government to prosecute any person or persons in the United States who have been engaged either in invading Cuba or in getting up an expedition for that purpose; and you will say to him that I am encouraged to make this request by Don A. Calderon de la Barca, who assures me that some such testimony is in possession of the Spanish authorities and will be cheerfully tendered to this government to enable it to maintain its treaty stipulations with Spain.

I am, sir, very respectfully, your obedient servant,

JOHN M. CLAYTON.

COMMODORE CHARLES MORRIS, &c., &c., &c.[8]

Meantime, on June 30, Mr. Campbell, together with Commodore McKeever, several officers of the *Congress,* and Commander Lowndes, of the *Germantown,* again waited upon the captain general. The captain general was, as always, polite and courteous. He spoke of the Contoy prisoners, and said, "*Viven y viviran*" (they live, and will live), from which it was inferred that no capital punishment was contemplated. The captain general also

[8] House Exec. Doc. No. 83, 32nd Cong., 1st Sess., pp. 5-7; House Exec. Doc. No. 86, 33d Cong., 1st Sess., pp. 353-4.

expressed the opinion that the summarial proceedings would be concluded in a few days; that some of the prisoners were in truth passengers for California; but that the masters of the vessels were cognizant of the expedition, and had knowingly taken on board men, arms, and munitions of war.

On the 1st of July, Commodore Morris embarked in the *Vixen*, and arrived at Havana on the 10th. He immediately addressed a note to the captain general, requesting an audience, and received an oral message that he would be received the next day at noon. There were at that time in the harbor of Havana, in addition to the *Vixen*, the frigate *Congress* and the sloop-of-war *Albany*. From Commodore McKeever, commanding the *Congress*, Morris learned that he had held several conversations with the captain general respecting the Contoy prisoners, and had been assured by him that a part of them would be released before the 12th of the month. McKeever had intended sailing for Rio de Janeiro on the 7th, but had agreed to postpone his departure for four days upon receiving the above assurance. Early in the morning of the 11th, he received a note from the captain general, dated the 10th, informing him that 42 of the prisoners had been liberated, and would be sent to any vessel that he might designate. McKeever was accordingly instructed by Morris to receive them on board the *Congress*.[10]

At noon of the same day, Commodore Morris waited upon the captain general. When the main object of his visit, and the authority under which he was acting, were stated, the captain general declined to receive any communication as coming officially from the government of the United States, because Morris had no authority to act in any manner upon diplomatic subjects. At the same time, he expressed his readiness to receive any communication Commodore Morris might make in his official capacity as an officer of the navy, and to give to it the same consideration as though it had emanated from a higher authority. In reply, he

[10] This was a notable diplomatic victory for Secretary of State Clayton. It is interesting to note, in this connection, that the Captain General of Cuba, in a letter dated July 9, 1850, complained bitterly to his home government of what he deemed the deliberate effort of Clayton to bring on a war between the United States and Spain. (Caldwell, "Lopez Expeditions," p. 80.) Torrente, also ("Bosquejo Economico Politico de la Isla de Cuba," Vol. I, p. 49), believes that war with Spain would have resulted if Clayton had remained Secretary of State.

was told that Morris could act only in conformity with his instructions, and that any communications which he might make would have to be made as under the authority and by direction of the President of the United States. The consideration and weight which the captain general might give to these communications would, of course, depend upon his own views of his duty.

In the course of the conversation which followed, all the communications required by Morris' instructions were made to the captain general, with the exception of a formal demand for the captured persons who were still detained. Morris was induced to defer this until he could communicate with those who had been released. The captain general stated that the persons who were still detained were beyond his lawful control until the judicial proceedings upon them (which were still in progress) should be completed.

On the morning of the 12th, Consul Campbell went with Commodore Morris to the *Albany*, where they saw and conversed with the 42 persons who had been liberated the day before.[11]

From the statements of these persons it appeared that from the time of their capture almost up to the time of their release they had been more or less confined by leg-shackles, and generally on the lower gun-deck of the Spanish ship-of-the-line *Soberano*. In other respects none of them made any complaint of gross ill-treatment. None of the original number had died, and all were then present. When any had been sick, they had been sent to the hospital until they were well enough to return to the ship. All of them appeared to be in good health, excepting one who had returned from the hospital the day they were liberated.

The *Albany* sailed for Pensacola, with these men, on the morning of the 13th, with orders to hold them on board until Commander Randolph should receive directions relative to them from the administration at Washington. Upon the arrival of the *Albany* at Pensacola, Randolph was instructed by Commodore Newton to proceed to Mobile and to deliver the men over to the United States Marshal for the southern district of Alabama. After performing this duty, Randolph returned to Pensacola.

On the 15th, Commodore Morris had another interview with the captain general, at which he made the formal demand for

[11] The men had been transferred from the *Congress* to the *Albany* for transportation to the United States.

the ten prisoners who were still detained. The captain general, in reply, stated that these persons were then in the possession and under the control of the judicial tribunals, and that until those tribunals should decide on the guilt or innocence of the men, he could not lawfully interfere with them. He stated also that the master of the *Georgiana,* the mate of that vessel, and the mate of the *Susan Loud* were all that were on trial, and that the seamen were detained only as witnesses. He concluded by repeating assurances of his great respect for the President of the United States, and of his own desire to preserve friendly relations between Spain and the United States by all means that were consistent with his duties toward his own country.

By an arrangement with the general of marine, Commodore Morris and Consul Campbell visited, on the morning of the 16th, all the persons who were still detained. The two officers were told that the master of the *Georgiana* (Mr. Benson) had been sent to the hospital about the 14th of the month, in consequence of having shown symptoms of insanity. They found him there, suffering from mania of a violent character. Although he recognized the consul and a Spanish officer, he was evidently unable to comprehend and did not notice anything that was said to him. His mind appeared to dwell upon Lopez, whom he thought to be in the company of his visitors, and on whom he was frequently calling. The chief of the hospital promised to have him placed in the ward for the insane, and that every attention would be given to alleviate his condition. The two mates and the seamen, except one at the hospital, were on board the *Soberano.* On being questioned as to the treatment they had received, they said that they had no complaint to make; that when any of them had been sick, they had been sent to the hospital; and that none of them had died.

The permission to visit the master and the mates had been granted to the commodore and the consul as a special favor; for, by the Spanish laws, the prisoners were not allowed, at that stage of their trial, to communicate with any but the officers of the law. The American officers were therefore requested not to question the prisoners on the subject of their capture and trial, but every liberty was granted to question them about their condition and treatment. Commodore Morris was also authorized to inform the seamen that they were merely being held as witnesses, and that they would be released as soon as their testimony should be closed.

From the " dictamen " of the Auditor of War and Navy, which decided the case of the two captured vessels and the passengers taken with them, it was plain that the authorities of Cuba considered the capture of those vessels as authorized by the law of nations and were regulating all their proceedings accordingly. On being questioned by Morris, the Fiscal of Marine said that the evidence to be used at the pending trials would be the testimony of the seamen, the declarations of the parties, and the papers found in the vessels. Morris was also assured that the trials would be closed without other delay than was due to their great importance. Morris, believing that his longer stay at Havana could not be productive of any advantage, embarked and sailed in the *Vixen* on the afternoon of the 16th of July.

Eventually, all but three of the prisoners were found guilty by the Cuban maritime court. The master of the *Georgiana* and the mates of the two vessels were sentenced to long terms of penal servitude. The condemned men had already started for their destination, when the Queen of Spain, in October, 1850, desiring to give a new proof of friendship to the United States and of especial deference to our new Secretary of State, Daniel Webster, was pleased to exempt the master of the *Georgiana* from all personal punishment, and also extended her royal clemency to the other men. The Spanish Government accordingly took proper measures to set them at liberty the moment they reached Spain.

It seemed to be the policy of Webster to try to conciliate Spain, and the two sailing vessels were allowed to be confiscated by a Spanish prize court, although it was in time of peace, without any serious protest from the United States Government.[12]

Lopez made still another filibustering attempt in the summer of 1851. On the 11th of August, he landed with 480 men on the northern coast of Cuba, where he left Colonel Crittenden and 100 men, and started to the interior, expecting to be joined by the

[12] In compliance with a resolution of the House of Representatives, dated December 15, 1851, President Fillmore transmitted to that body information respecting the seizure and confiscation of the *Georgiana* and *Susan Loud*. The documents were printed as House Executive Document No. 83, 32d Cong., 1st Sess. In further compliance with a resolution of the House, dated March 10, 1854, President Pierce transmitted additional information in this connection. These documents were printed as House Executive Document No. 86, 33d Cong., 1st Sess.

people. He was again disappointed. His army was attacked and dispersed. Crittenden and his party were captured and shot. Lopez and six of his companions were also captured, and afterwards executed at Havana. Of 226 prisoners who remained alive, 135 were sent to Spain under sentence of hard labor. Those who were left in Havana were released through the action of Commodore Foxhall A. Parker, who had been named by the President a special commissioner under the State Department to confer with the captain general of Cuba in the matter. Those who had been sent to Spain were also subsequently released at the earnest solicitation of the American minister at Madrid.[33]

France and England now issued orders to their naval commanders to prevent by force, if necessary, the landing of adventurers from any nation on the island of Cuba with hostile intent. This action led to a solemn warning in the presidential message of 1851. President Fillmore said in this connection:

> The maritime rights of the United States are founded on a firm, secure, and well-defined basis; they stand upon the ground of national independence and public law, and will be maintained in all their full and just extent. . . . . No American ship can be allowed to be visited or searched for the purpose of ascertaining the character of individuals on board, nor can there be allowed any watch by the vessels of any foreign nation over American vessels on the coasts of the United States or the seas adjacent thereto.[34]

The various demonstrations under Lopez, and the general tone of encouragement accorded to those movements by the press and by public opinion, offered flattering inducements for the forwarding of other such enterprises. We find, accordingly, in July, 1853, William Walker organizing a force in San Francisco, for the conquest of the department of Sonora, in northern Mexico. The brig *Arrow,* in which the party were about to embark, was seized by the federal authorities, and the expedition frustrated. Opposition, however, only added to the number of Walker's re-

[33] Chadwick, Relations of the United States and Spain (Diplomacy), pp. 236-8.

[34] Fillmore, Message, Dec. 2, 1851. The American position was later stated most clearly as follows: "American vessels on the high seas, in time of peace, bearing the American flag, remain under the jurisdiction of the country to which they belong, and therefore any visitation, molestation, or detention of such vessel by force, or by the exhibition of force, on the part of a foreign power, is in derogation of the sovereignty of the United States." (Senate Resolution, June 16, 1858.)

cruits, and on the 15th of October he left San Francisco, in the bark *Caroline,* and landed in La Paz, Lower California.[15]

By February, 1854, desertions, wounds, and sickness had reduced Walker's effective force to 130 men. A Mexican brig-of-war blockaded the mouth of the harbor of Ensenada to prevent reinforcements from reaching him and on February 11 the United States sloop-of-war *Portsmouth* arrived in the harbor. The officers of the *Portsmouth* visited Walker at his headquarters. The visit boded no good to the filibuster cause, and Walker hastened his departure, spiking and burying all his guns but one, which he took with him, and leaving behind eight sick and wounded men. These were taken care of by Captain Dornin, of the *Portsmouth,* and carried to San Diego.[16]

[15] Wells, Walker's Expedition, pp. 23-24.
[16] Scroggs, "Filibusters and Financiers, pp. 43-44.

[TO BE CONTINUED]

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U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

THE EARLIEST EXPONENT OF SEA POWER

By Sidney Gunn

It is well known that Admiral Mahan had many predecessors as advocates of sea power, among them men like Lord Bacon, whose distinction was intellectual and in no wise naval, but it is not generally realized that one of the supreme productions of the human intellect is fundamentally a eulogy of the character and the accomplishments of the sailor.

This work is the *Odyssey* of Homer. Scholars have written libraries expounding it. They have disputed whether it is the work of one author or a syndicate; whether it was composed before or after the Greeks acquired the art of writing; whether it is older or later than its companion poem, the *Iliad;* and whether its hero, Odysseus, is a personification of the sun, the summer, or some other feature or aspect of the natural world. About all these things and many more the learned have vigorously and volubly disputed, but, after the manner of their kind, they have for the most part lost sight of the obvious in their enthusiasm for the recondite, and so have failed to make clear to the world the real reason why this work has for thirty centuries held the interest of mankind, and why it is also regarded as among the greatest of the world's literary monuments.

Of course it is true that it is a combination of primitive material. Man in his infancy personified nature and told stories in which the sun and the moon, the seasons, and all the processes of nature were depicted as creatures with the motives and problems of men. This, however, was only during the earliest stages of society, for very soon the savage began to realize that "the proper study of mankind is man," and so he turned to his own history and began to create fables that reflected the growth of that wonderful thing civilization more than they did the natural world. The natural world, however, is the theater of civilization, and there was felt to be a resemblance, if not an identity, between its laws and those

of civilization, so the old heroes who had mainly depicted the sun and moon or the weather were still the characters in his tales, but they had a new meaning, for they represented social forces. It is thus a very reasonable thing to say that Odysseus is a personification of nature in origin, but it is not the complete truth to say that he is that in the *Odyssey*.

At the time that the *Odyssey* was composed, even if we put it before 1000 B. C., the human race had progressed nearly everywhere beyond the point where the natural world was its chief interest; and so the Greek creator of this masterpiece found his inspiration for it in the development of man individually and collectively. Obviously one of the greatest triumphs of human courage and resource over the powers of nature was the ability to navigate the trackless waters without the guidance of landmarks, and it is by making its hero an embodiment of the qualities in our nature that brought about this triumph that the author of the *Odyssey* gives it its unity and its perennial interest.

The creator of this great epic was, in all likelihood, largely unconscious of the fact that he was celebrating the collective efforts of many men and many generations. He probably thought he was recounting the acts of a single individual whom he admired, and the ninety or more generations of mankind who have found the tale of absorbing interest, have done so because it depicts convincingly the experiences of a clearly defined personality. This, however, is the result of the inability of our minds to perceive the general or the abstract except indirectly or by suggestion. Even the great genius cannot think impersonally, because personality is the very basis of human experience; but, by an intuitive process more subtle than thought, he can make personality a symbol of humanity, and those who delight in his work appreciate its implied meaning by the same superconscious faculty as that by which it was created.

The basis of Odysseus's character is delight in adventure and aspiration for knowledge, and these two things are undoubtedly what did most to induce men to venture out on the sea and learn by slow and painful stages to navigate its pathless wastes. It is admitted that the man who invented the hammer or any other elementary tool was a far greater man than the creator of the most complicated modern device, because first steps are always the hardest to take; but what are we to think of the first man or

men who had the hardihood to venture out on the sea in the frail and clumsy craft that primitive implements and elementary knowledge could devise! Surely this was a superlative exhibition of the adventurous spirit, and it is the qualities displayed by these men and their successors down to his own time that the author of the *Odyssey* made the basis of his hero's character.

But it took more than the spirit of adventure and curiosity to conquer the sea. Hardihood and infinite resource were necessary, for the task was such as to put human courage and ability to the supreme test. So Odysseus is the "much-enduring man," and "the man of many devices." Besides his insatiable thirst to know the world and the ways of men, he had courage that nothing could subdue, and resourcefulness that nothing could exhaust. He is, in short, the embodiment of all the striking characteristics of those hardy specimens of our race, whose restless energy and indomitable perseverance have given us the art of navigation and all the benefits derived from it. Not only this, but the picture is made complete by other qualities that distinguish the mariner in all generations. Odysseus shows a facility for getting into trouble and getting out again, and he displays an even more sailor-like attribute in his ability to find a sweetheart in every port.

To be sure, the story has many elements that do not relate entirely to the sea. It has much in it that is the result of its being a combination of myth and legend, and it has a great deal that was put in to give it concreteness and artistic effect. Nevertheless its theme is the struggle of Odysseus, aided by Athena, to save himself from destruction at the hands of Poseidon. Now Athena is the personification of intelligence and courage, while Poseidon is a symbol of the forces of nature, particularly of such mighty exhibitions of it as are given by the sea.

Not only is there this general basis to show that the *Odyssey* is a picture of the sailor's nature and experiences, but there is also much that reflects the results of the development of the art of navigation. It is a sort of figurative geography. Most of its fanciful episodes have features that probably owe their origin to magnified and distorted accounts of the striking things about the physical or social world that had been made known by sea-faring up to the time of the composition of the poem, as we can see by a brief examination of some of them.

One of the most familiar adventures of Odysseus is the one with Polyphemus. Odysseus and some of his men enter an inhabited cave and await the return of its occupant. Eventually he comes, but he turns out to be an enormous giant with only one eye in the middle of his forehead. His nature is as brutal as his form, for he shows no respect for the sacred obligations of hospitality, but kills and eats some of Odysseus's men, and shuts the rest up for a like fate. Odysseus gives him a skin of wine, which gratifies the giant so much that he asks Odysseus his name, and promises to reward him for his gift by eating him last. Odysseus says that his name is Nobody, and when the wine has overcome its too appreciative recipient, he and his companions put out the giant's single eye, with a sharpened pole. This awakes Polyphemus, and he at once sets up a roar that calls his neighbors of like size to his assistance. When they ask him what is the matter, however, he says: "Nobody has hurt me. Nobody has put my eye out." Whereupon his friends go home in disgust at being called out of bed for nothing. The next day Odysseus and his men escape by hanging underneath the giant's sheep as they pass out of the cave, and suffer nothing more from Polyphemus except the consequences of being under his curse.

It is impossible to analyze this most effective of all nursery tales, and be sure that it expresses anything more than the delight in the wonderful that is so strong in children and primitive people. And yet it can be easily seen that it may reflect the fact that the early navigator often came in contact with a cave-dwelling, cannibalistic people, whose cruelty was only equalled by their stupidity. The enormous size and the single eye may be only the exaggeration stimulated by wonder and demanded by credulity, but it is quite possible that these savages may have been of greater stature than more advanced races, and the single eye may be reminiscent of some idol or some ceremonial headdress connected with the sacrifice of the victims before they were eaten. It may also have arisen from the practice of putting out one of the eyes, for mutilation is a common savage practice.

The interpretation of some of the other episodes is less dubious than this, however. Odysseus is described as reaching a land where night and day are so near together that a shepherd could earn double wages if he could go without sleep. This seems plainly to indicate a vague knowledge of the summer conditions

in high latitudes, and it shows that the " midnight sun " astonished early voyagers as much as it interests tourists to the Scandinavian countries to-day.

Then there are references to floating islands that point to a probable knowledge of icebergs, and there are incidents, like the adventures among the Lotus Eaters and the Sirens, that, although they are probably very largely a poetic presentation of the attractions and temptations that lure the wanderer to forgetfulness of his home or to destruction, yet may also owe their origin to tales of the people of the Orient and Mediterranean littoral, the charms and pitfalls of whose luxurious living and narcotic drugs must have ensnared many a mariner of the ancient world and made him a willing or unwilling exile from his native land.

The *Odyssey* is thus an exposition of the psychology of the sailor, and an enthusiastic recognition of the debt civilization owes to his restless but steadfast spirit. It should therefore have a special interest for all men whose profession is seamanship, and it should be a source of pride to them to realize that their calling and the qualities it necessitates and develops have provided the matter for one of the greatest works of art ever created by the human intellect.

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PROPULSION OF SHIPS.[1]

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It is doubtful if any branch of engineering has advanced as slowly and cautiously as that branch of marine engineering which has to do with the propelling of machinery. Reliability seems to have been the only thing in view, and economy seems, until very lately, to have received very little consideration.

As an illustration of this point, I would mention that some of the Hudson River boats still have side wheels and use boilers with about 30 pounds steam pressure, producing a brake horsepower with about 30 or 40 pounds of steam.

Steam engines were built as early as 1765, but it was not until 1807 that one was used to propel a boat. Electricity was used for power transmission as long ago as 1876, but its application as a medium for transmitting power to the propeller of a ship did not take place until 1908. This all goes to show that progress in marine propulsion is very slow, the tendency being to follow the old and beaten paths.

Until within the last few years, reciprocating engines were used exclusively for the propulsion of boats, but with the advent of the steam turbine and its almost universal use on shore, where, due to its high steam economy, small size, and light weight, it has practically superseded the reciprocating engine, the practicability of its use for the propulsion of ships began to be considered. It is largely due to the untiring efforts of Sir Charles Parsons that turbines are now rapidly replacing reciprocating engines for the propulsion of ships. It may not be out of the

[1] Presented at a joint meeting of the Electrical Section of the Franklin Institute and the Philadelphia Section, American Institute of Electrical Engineers, held on Thursday, October 11, 1917. Reprinted by courtesy Franklin Institute.

scope of this paper to give some of the reasons why the turbine is preferable to the reciprocating engine as a prime mover.

First: Because it gives simple rotation and admits the possibility of a large range of expansion. At present the best steam engines of the triple- and quadruple-expansion type cannot, on account of the size of the low-pressure cylinder, be made with an expansion ratio of more than 16 to 1 or 20 to 1. In the turbines, however, there are practically unlimited possibilities of expansion, depending almost entirely upon the temperature of the condensing water. A vacuum of 29 inches is not at all an unusual occurrence, and 29.5 inches is being recorded in some of the larger central stations during the winter months. What this means may be better understood when we consider the available energy of a pound of steam when it is expanded from boiler pressure to various degrees of vacuum.

200 pounds pressure to 24 inches vacuum....	220,000 foot-pounds
200 pounds pressure to 26 inches vacuum....	238,000 foot-pounds
200 pounds pressure to 28 inches vacuum....	265,000 foot-pounds
200 pounds pressure to 29 inches vacuum....	289,000 foot-pounds

In other words, a turbine can realize about 25 per cent more of the energy of the steam than the reciprocating engine, which means a saving of 25 per cent in fuel, size of boilers, etc.

The small size of the turbines is, of course, another very important item. Incidentally there are a great many minor advantages, such as saving of oil, attendance, ash handling facilities, etc.

When the turbine is considered for ship propulsion there are a few facts that must be borne in mind, namely:

High-speed turbines are lighter, cheaper, simpler, and more economical than the slow-speed turbine. Propellers, on the other hand, are, within well-known limits, confined to slow speeds for high efficiency. Turbines, therefore, when used for direct connection to the propeller shaft, must necessarily be designed to operate at a speed which is too low for the economical use of steam, and even then cannot be conveniently designed for a speed low enough to secure efficient propeller action. Parsons realized this and advocated the use of direct-connected turbines only for high-speed ocean liners requiring a large amount of power, and the *Mauretania* is probably one of the best examples of ships using this method of propulsion. The horsepower of the *Mauretania*

is 68,000, the speed about 26 knots, and about 43.5 tons of coal per hour is required. The water rate obtained is about 11.5 or 12 pounds and the coal consumption about 1.5 pounds per shaft horsepower-hour.

A few years later, when the White Star Line decided to build the *Olympic* and the *Titanic,* which were slow-speed ships requiring about 45,000 horsepower, Mr. Parsons advocated a combination of two reciprocating engines exhausting into a low-pressure turbine, which gave him an economy about comparable with the *Mauretania.*

As you doubtless all know, the steam engine is a very efficient prime mover when operating in the higher temperature ranges; that is, an engine may have as high as 80 per cent thermodynamic efficiency when operating from boiler pressure to atmosphere, whereas if it was operated down to a 28-inch vacuum the efficiency would not be greater than 40 or 50 per cent. On the other hand, the turbine works efficiently in the low-pressure end of the cycle, so that by using a reciprocating engine in the upper ranges in combination with a turbine to utilize the energy in the low-pressure ranges an overall efficiency is obtained which may be above that obtainable with either the reciprocating engine or the turbine when working alone. In the *Olympic,* all reversing and maneuvering is done with the reciprocating engines, making it possible to build a simple and efficient low-pressure turbine.

It is therefore necessary, in order to obtain the advantages of the high-speed turbine and at the same time to be able to use a low-speed efficient propeller, to have some form of reduction gear between the propeller and the prime mover. This condition is what led up to the application of electricity to the propulsion of ships, to the mechanical reduction gear, and also to speed reduction by means of hydraulic transmission. Electric propulsion is best suited to very large, high-powered vessels, especially in cases where good economy is desired at two or more speeds, as in the case of warships. The reasons for this are as follows:

Electric transmission affords a very simple and practical means of speed reduction in almost any ratio which may be desired.

It affords a very simple means of reversal by a change of electrical connections without mechanical devices, complication of piping, valves, etc. Any desired reversing torque can be obtained without affecting the efficiency of the equipment in the forward direction.

In the case of battleships, the feature that is particularly important is that electric transmission affords means by which the ratio of speed reduction is changeable by simple electrical connections, thus making possible the economical use of the same apparatus, both under high-speed and cruising conditions.

Electric transmission makes it possible to use a plurality of cruising and generating units, so that damage to one or more parts will not disable the vessel.

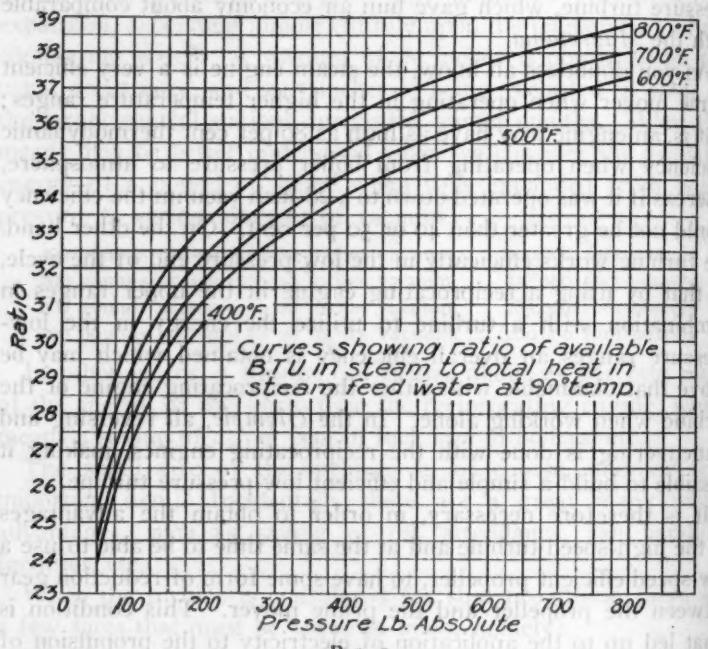

FIG. 1.

With electric transmission, high steam pressure and superheat can safely be used, and the gain in fuel economy by its use is best shown by these curves. A steam temperature of 700° is now successfully used in Europe, which with 500 pounds steam pressure would give a superheat of 233°. Heat available for work would then be about 36.3 per cent, whereas under ordinary steam conditions, say 200 pounds pressure and 50° superheat, we have only 30.75 per cent available, a net gain of 18 per cent in fuel, which would more than compensate for any additional weight or cost of the electrical equipment.

Turbo-generators are now built with an efficiency of over 80 per cent, which with motors of 95 per cent efficiency and a boiler efficiency of 80 per cent would produce a shaft horsepower-hour with 0.825 pound of coal (containing 14,000 British thermal units per pound) or 0.61 pound of oil (19,000 British thermal units per pound), the latter figure comparing favorably with Diesel engines when lubricating oil is taken into consideration.

The first electrically propelled boats in this country (outside of electric launches) were two fireboats in the city of Chicago, the *Joseph Medill* and the *Graeme Stewart,* which were equipped with electric propelling machinery in 1908. Their equipment consists of two Curtis turbo-generating units of 1000 horsepower capacity each. Each turbine is connected to a 250-kilowatt, direct current generator and a 1000-horsepower centrifugal pump. There are two propellers, each driven by a 250-horsepower, direct-current, 220-volt motor. The equipment is arranged for pilot-house control. The wonderful maneuvering qualities, simplicity of control, and fine economy of these boats, together with the fact that up to the present time no money has been spent for repairs to the electric propelling machinery, make the vessels the most efficient fireboats in the country and probably in the world. In the case of these fireboats, direct-current apparatus, with its complication of brushes and commutators, was used, but for larger installations alternating current is used, which greatly simplifies the apparatus.

The second example of electric propulsion is the large United States collier *Jupiter.* Due to the wonderfully fine performance of this collier, which has now been in service for about four years, the Navy Department decided to install electric propelling machinery in the battleship *New Mexico,* which is now nearly completed at the New York Navy Yard, and the apparatus for which has recently passed all government tests at the Schenectady Works of the General Electric Company. The Navy Department has also decided to install electric propelling machinery in six other new battleships requiring about 33,000 horsepower each, and in five large battle cruisers requiring about 180,000 horsepower each.

Mr. W. L. R. Emmet, to whom all credit is due for the introduction of electric drive in vessels in this country, read a paper before this Institute, about four years ago, describing quite fully

the *Jupiter* equipment as being built, and predicted results in regard to economy which have more than been borne out in actual service. A short description of the *Jupiter* will be given.

The *Jupiter* is a sister ship of the *Cyclops* and the *Neptune*. They each have 20,000 tons displacement and a carrying capacity of about 12,000 tons of cargo. The principal dimensions are: Length, 548 feet; breadth, 65 feet; depth 39¼ feet; draft, 27 feet 6 inches. The *Cyclops* is equipped with reciprocating engines and the *Neptune* with Parsons geared turbines (built by the Westinghouse Company).

In giving the General Electric Company the contract for the *Jupiter* equipment, a water rate of 13 pounds per shaft horsepower at 14 knots and 15 pounds per shaft horsepower at 10 knots was guaranteed. It was also provided that in case of failure of the electrical equipment it should be removed without expense to the government, so that reciprocating engines which were originally contemplated for this vessel could be installed in its place. This feature limited the design somewhat, for, while it was believed by its designers that electric propulsion would show a great advantage over any other system, even greater improvement could have been accomplished if the vessel had been designed with a view to obtaining all the advantages incident to electric drive.

During her official trials the *Jupiter* maintained an average speed of 15 knots for 48 hours, with 7152 horsepower delivered to the propeller shafts and a propeller speed of 116.72 revolutions per minute. The water rate as actually measured was 11.68 pounds per shaft horsepower-hour. Due to the fact that the steam pipe between the boiler and turbine was too small, the steam pressure at the turbine was only 168 pounds instead of 190 pounds, for which the machine was designed. Since the official trials took place a larger steam pipe has been installed and the water rate reduced to 11 pounds.

During her 10-knot run the water rate was 12.31 pounds. It will be seen from this that the guaranteed water rates of 13 and 15 pounds were beaten by about 20 per cent. The *Jupiter* is to-day, according to the government records, making a speed of 12 knots with a coal consumption of only 55 tons a day, which is a record about 35 per cent better than any boat of her size afloat to-day. The *Cyclops* on her trials developed 14.6 knots with

about 6000 horsepower and a steam consumption of about 14 pounds, or about 25 per cent greater than the *Jupiter*.

The *Neptune*, equipped with Parsons geared turbines, has just recently had her trials and the published results give us the following comparison with the *Jupiter* and *Cyclops:*

	U. S. Naval Colliers		
	Cyclops	*Neptune*	*Jupiter*
Weight of propelling machinery only, tons.....	280	150	156
Steam consumption at maximum speed, pounds per shaft horsepower-hour	14.0	13.4	11.1

The equipment of the *Jupiter* consists of one turbo-generating unit with an induction motor coupled to each of the two propeller shafts. The generator is of the 3-phase type designed for a normal output of 5000 kilowatt at 2300 volts. At a speed of 14 knots the turbine runs at about 2000 revolutions per minute and the motors at 110 revolutions per minute. The generator has two poles and the motors 36 poles, making a speed reduction of 18 to 1.

The speed of the ship is controlled by a governor which was specially designed for a very wide range of speed adjustment. It operates from the maximum speed down to a speed of four or five knots per hour. The speed can also be controlled independently from the main throttle valve, which is also designed so that in case of excess speed it is closed automatically by the emergency governor, which operates independently from the main governor and is set to close at a speed slightly higher than the maximum speed of the boat.

The motors are of the 3-phase induction type and have 36 poles. The windings are made waterproof. The rotor windings of the motors are connected to collector rings, which under normal conditions are short-circuited by a slider on the shaft. These collector rings are connected by means of brushes to water-cooled resistances, which are provided for the purpose of obtaining a high torque in starting or reversing. In this particular case they are designed to give more than full-load torque. When the motors are running with this resistance in the circuit the current flowing to the motors is always limited so that all the maneuvering can be done by simply opening and closing the ahead and reversing switches.

When running with the resistance in, the *Jupiter* will reach a speed of about 10 knots. These resistances afford a very quick

and powerful reversal, but the ship can be operated without them, and is, as a matter of fact, a great deal of the time. In this case, reversing is accomplished by slowing down the generating unit, which also slows down the propellers, the reverse connections are made, and the turbine again brought up to speed, which will bring the motors up to speed in the reverse direction.

The switchboard equipment is very simple. It consists of one ahead and one reversing switch for each motor, a field switch for the generator, ammeter, voltmeter, wattmeters, and frequency meters graduated in revolutions per minute. The switchboard has also integrating wattmeters which record on a dial the total amount of power going to each motor and makes a very interesting record for each trip of the boat.

The excitation of the generator is obtained from the lighting circuit of the ship, which consists of three small turbine-driven, direct-current generating sets. One of these sets is more than sufficient to furnish the necessary excitation.

The third instance of electric propulsion is the new U. S. battleship *New Mexico,* which is now under construction at the New York Navy Yard. This installation provides conditions where the advantages of electric propulsion can be realized. The *New Mexico* is the largest and most powerful battleship which has been laid down by our navy up to the present time. She will have a displacement of 32,000 tons and a designed speed of 21 knots, requiring about 28,000 horsepower. The propelling machinery is, however, designed to deliver a maximum of 37,000 horsepower, and it is believed that this will give her a speed of 22 knots.

The equipment will consist of two turbo-generating units, four propelling motors (one for each shaft), switching apparatus, cables, instruments, etc. The contract also calls for two 300-kilowatt non-condensing, direct-current turbo-generators, which will furnish excitation and power to drive the auxiliary machinery. As the General Electric Company was required to guarantee the steam consumption of the propelling machinery, including the auxiliaries, the greatest care was taken in their selection, and they are all to be electrically driven. The exhaust steam from the direct-current generating sets which operate non-condensing will be used for heating the feed water, and any that may not be required for this purpose will be exhausted into the main turbine.

The generators for the *New Mexico* are bi-polar alternators, and the motors are arranged to be connected for either 24 or 36 poles. For economic cruising at a speed of 15 knots or less, only one generating unit will be required with the motors on the 36-pole connection. For higher speeds the 24-pole motor connection will be used with both generators. One generator, however, will be capable of driving the boat up to a speed of about 19 knots.

Speed variations with either motor connection will be obtained by varying the generator speed, and a governor will be installed similar to that used with the *Jupiter* equipment.

The steam consumption guaranties as made to the government cover the total amount of steam used both by the main generating units and the auxiliaries, and are as follows:

STEAM PRESSURE 250 POUNDS GAUGE AT THROTTLE.

10 knots	14.6 pounds per shaft horsepower-hour
15 knots	11.4 pounds per shaft horsepower-hour
19 knots	11.1 pounds per shaft horsepower-hour
Max. speed	11.9 pounds per shaft horsepower-hour

Very heavy penalties are attached to these guaranties in case they are not met, namely, $25,000 per pound for the two lower speeds and $20,000 per pound for the two higher speeds.

At full speed the *New Mexico's* propellers will operate at 175 revolutions per minute, the lowest speed permissible within the space allowed. The propeller speed for the sister ship of the *New Mexico* with Parsons type turbines is 240 revolutions per minute, which according to Captain Dyson, would indicate a propeller efficiency 9 per cent worse than is expected on the *New Mexico,* and this difference would more than compensate for the electrical losses in the motors and generators.

In order to be able to correctly judge the relative economy of different methods of propulsion, it may be interesting to compare the water rate per effective horsepower, taking for examples of such different methods the battleships *Florida* and *Utah,* which are equipped with Parsons turbines; the *Delaware,* which has reciprocating engines, and the *New Mexico,* with electric drive.

	Propeller speed	Water rate per effective horsepower per hour		
		12 knots	19 knots	21 knots
Florida	328	31.8	24.0	23.0
Utah	323	28.7	20.3	21.0
Delaware	122	22.0	18.7	21.0
New Mexico	175	17.3	15.0	16.4

The guaranteed weight of the propelling machinery for the *New Mexico* without the auxiliaries is 530 tons, with a penalty of $500 per ton for any excess over this amount. The estimated weight of the Parsons turbine equipment for this vessel was 653 tons.

The contract price for the *New Mexico* machinery was $431,000, and the Navy Yard estimates show that a saving of $200,000 will be effected by using this equipment instead of the Parsons equipment as originally contemplated.

ELECTRIC PROPULSION FOR LARGE BATTLE CRUISERS

These vessels are designed to have a speed of 35 knots, at which speed they will require about 180,000 horsepower. There are four propellers operating at 250 revolutions per minute at maximum speed.

The installation proposed for these ships consists of four high-speed turbo-generators, each having a capacity of about 35,000 kilowatts. On each propeller shaft there will be two independent induction motors, each having a capacity of 22,500 horsepower. The switchboard will be provided with an arrangement by which any combination of generating units and motors can be used, and starting, stopping, and reversing can be instantly done by movement of a lever. All changes of connections are made on dead circuits, so that there can never be any big rushes of current to strain the apparatus. Safety devices are also provided so that any unbalancing of current will open the circuit of that particular unit in which it occurs.

The total weight of the complete equipment for one of these vessels is about 1800 tons, of which the turbines alone weigh about 350 tons.

That electric propulsion can also be profitably applied to a small boat is proved by Mr. Ljungstrom, in Sweden, in the case of the small coastwise steamer *Mjolner*, which is only 225 feet long, 56 feet beam, and 15 feet draft, requiring 900 horsepower. Stockholm's Rederiaktiebolajet Svea decided to build two sister ships, the *Mimer* and the *Mjolner*. The *Mimer* was equipped with triple-expansion engines, and Mr. Ljungstrom guaranteed a saving of 30 per cent in fuel with his method of electric propulsion in the *Mjolner* over the *Mimer* equipped with engines. The boats have now been built and tested, and the electrically propelled boat

showed a saving of 42.3 per cent in fuel consumption. This is indeed a remarkable record, but may be partly explained by the increased efficiency of the boiler plant. For his electric drive Ljungstrom uses 218 pounds steam pressure and 235° super heat, and this alone would effect a saving in coal over the *Miner* of about 15 per cent.

In this boat Ljungstrom uses two 400-kilowatt turbines running at 7200 revolutions per minute, generating 3-phase, 120-cycle current at 500 volts. This current is used to drive two induction motors which are geared to the main propeller shaft. The motors run at 900 revolutions per minute and the propeller shaft at 90 revolutions per minute. All of the auxiliaries are electrically driven, which affords another appreciable saving.

Mr. Ljungstrom has done some wonderfully fine engineering in connection with this equipment and has combined electric propulsion with mechanical gearing, which is a great step forward.

The greatest competitor of electric drive at the present time is the high-speed helical gearing which is now coming into such universal use. This method of drive has, however, certain limitations as compared with electric drive, some of which I will endeavor to mention. The maneuvering qualities cannot be made equally as good as with electric drive. Noise is, of course, practically eliminated with electric drive, whereas with gearing there must be some noise. There are also certain mechanical limitations to the use of gears which do not exist with electric drive. Briefly stated they are as follows:

The stresses on the tooth surfaces increase with the diminution in the number of teeth in the pinion, making it difficult to use very small pinions in order to secure large ratios of speed reduction. The length of the pinion and the output for a given diameter is limited, due to the torsional elasticity of the metal, which prevents equal distribution of load over the whole surface. As the gears become large and long, springing of the hull of the ship in a heavy seaway tends to throw very heavy strains on the teeth.

For installations where a large amount of power is required, multiplication of pinions becomes necessary, which means dividing up the turbine element into smaller units. This, of course, tends to decrease the efficiency, increase the weight, and produce a much more complicated outfit. In cases where large powers are

required with slow-speed propellers, the gears become very large and expansion strains due to heat may introduce great errors in the surface engagement of the gears which would throw prohibitive strains on the teeth.

With gear drive, reversing turbines are always necessary, and they introduce considerable loss, as they are always running in the reverse direction when the ship is going ahead. The losses due to this turbine friction amount to about 1½ to 2 per cent.

At the present time, for vessels requiring up to about 12,000 horsepower, or 6000 horsepower on each propeller shaft, mechani-

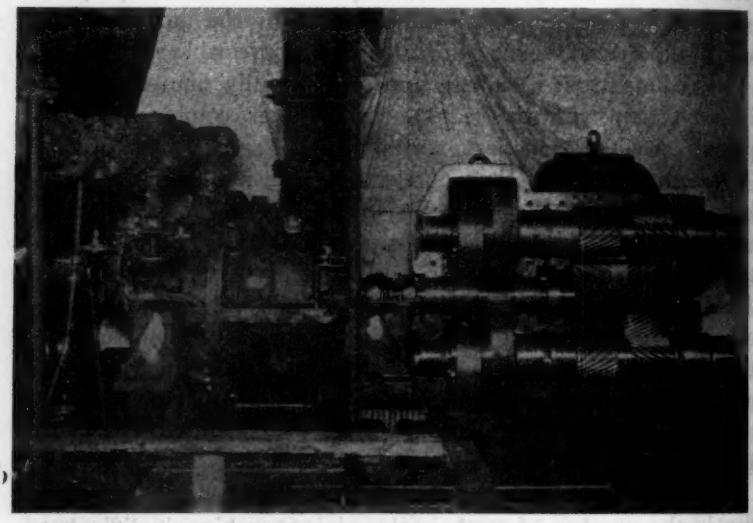

FIG. 2.—1750 horsepower turbine and 3200/137 R. P. M. reduction gear for U. S. S. *Nevada*.

cal gearing is lighter, cheaper, and more efficient than electric drive. For destroyers or light scout cruisers, where saving of weight is of the utmost importance, the high-speed geared turbine has no competitor.

About five years ago the General Electric Company began experimenting with flexible gears of the Alquist type, and results obtained showed that with this type of gear heavier loads could be carried than with solid gears, also that the noise was very materially reduced. The Alquist flexible gears are built up from disks suitably formed so as to facilitate axial deflection. On

account of helical angle there is a component of the driving pressure acting at right angles to the disks, and it is evident that the resultant axial deflection causes also a relative displacement of the tooth line in the direction of the drive.

On account of this flexibility, an equal pressure is assured for all of the disks and an equal distribution of pressure along the driving line. The freedom from heavy overloads, which in solid gears is caused by errors in cutting at some part of the tooth surface and more especially at the ends of the teeth by the twisting

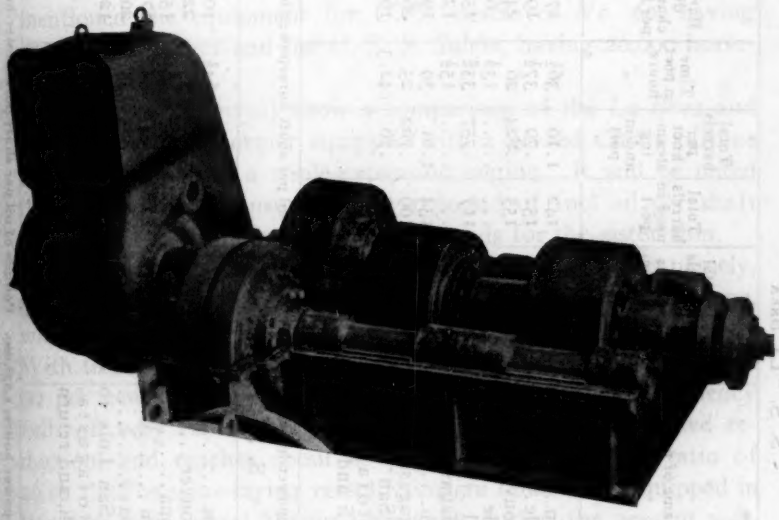

FIG. 3.—Curtis turbine and one-plane flexible type reduction gear for ship propulsion.

of the pinion under load, makes it possible to use a finer pitch than in solid gears, and this, of course, increases the output for the same length of pinion. To understand this, it must be remembered that the shape or curvature of the teeth does not depend upon the diametrical pitch, but only on the gear diameters. The finer the pitch, the more driving points per unit length of face and the greater load which can be carried.

Gearing of this type has been applied to about 150 high-speed turbines for connection to electric generators, and the unqualified success of these sets after two years of hard service led the General Electric Company to enter the marine field. Contracts

S. S. "LA BREA"

Voyage	Date	Total distance in knots	Average speed in knots per hour	Total barrels delivered	Name of port	Total fuel used steaming on voyage in barrels	Total barrels per knots steaming	Total barrels used in port	Total barrels per knot steaming and in port	Time in port hours	Barrels discharged per hour	Cost at 80 cents per barrel per knot steaming and in port (fuel)	Shaft horsepower-hours	Pounds of oil per shaft horsepower
1	March 9–15, 1916.	650	9.5	62,578	Oleum.....	574	.883	142	1.10	36½	1714	$ .88	116,000	1.67
2	March 15–26.....	2,037	11.33	73,600	Seattle.....	1459	.716	152	.79	37½	1962	.632	505,000	.941
3	March 28–April 6.	2,108	11.01	64,676	Vancouver.....	1584	.751	155	.824	26	2487	.659	530,000	1.01
				8,642	Seattle.....	....	....	...	.....	13½	640	.....	.....	.....
4	April 8–May 16...	92,545	10.97	52,109	Taltal.....	6896	.745	117	.757	33¾	1544	.605	2,330,000	1.00
				19,045	Antofagasta.....	....	....	...	.....	15½	1228	.....	.....	.....
5	May 17–23.....	450	11.20	77,292	Oleum.....	321	.713	134	1.01	39	1980	.808	118,000	.911
6	May 24–July 1....	91,965	10.65	71,824	Antofagasta.....	6900	.75	109	.762	25	2660	.609	2,200,000	1.06
7	July 1–Aug. 9.....	9,184	10.39	71,791	Port San Luis to Antofagasta, Chili and return	6875	.748	107	.76	42.3	1697	.609	2,230,000	1.04
	Average speed.....10.9													

Total pounds of oil steaming, 8,270,000. Total shaft horsepower-hours, 8,029,000. Pounds of oil per shaft horsepower-hour, 1.03.

S. S. "LOS ANGELES"

1	April 9–15.....	423	9.4	67,674	Oleum.....	556	1.31	164	1.70	64½	1099	$1.36	74,600	2.48
2	April 16–25.....	1845	10.13	74,739	Vancouver.....	1656	.897	218	1.01	33¾	2214	.808	394,000	1.41
3	April 27–May 25..	6549	10.22	73,734	Panama.....	5579	.851	169	.877	46¾	1577	.701	1,420,000	1.315
4	May 26–29.....	220	9.1	72,372	Oleum.....	221	1.00	123	1.56	41	1770	1.24	39,000	1.88
5	May 30–June 27...	6348	10.6	72,538	Balboa.....	5462	.86	159	.885	35	2072	.708	1,460,000	1.255
6	June 29–Aug. 7, '16	9151	10.24	71,007	Port San Luis to Antofagasta, Chili, and return	8293	.906	186	.926	56.3	1261	.74	2,130,000	1.31
	Average speed.....10.27													

Total pounds of oil steaming, 7,310,000. Total shaft horsepower-hours, 5,538,000. Pounds of oil per shaft horsepower-hour, 1.320.

have now been closed for about 250 marine propulsion sets, aggregating about 700,000 horsepower; about 40 of them are now in operation, and a few of them have gone about 100,000 knots with no replacement of either pinion or gears. Among the more important installations I may mention the cruising turbines for the battleship *Nevada,* which have now been in operation for almost two years. There are also about 25 2400-horsepower outfits in operation, as well as the two Luckenbach boats, each of 4000 horsepower, which on their trial trip developed 5200 horsepower. Among the important sets now being built may be mentioned the equipment for U. S. destroyer *No. 69,* having 21,000 horsepower and the U. S. S. *Salem,* having 20,000 horsepower.

The tables (p. 1050) show a comparison of the *La Brea* and *Los Angeles,* the former equipped with a geared Curtis turbine and the latter with a triple-expansion engine. It will be noted that the *La Brea* consumed only 1 pound of fuel oil per shaft horsepower, as compared with 1.31 pounds for the sister ship.

There is still another method of speed reduction; namely, the hydraulic gear as proposed by Doctor Föttinger in Europe, which consists of a centrifugal pump driving a water motor. With this arrangement he has obtained a combined efficiency of 90 per cent with a speed reduction of 4 to 1. The efficiency falls off very rapidly, however, with higher ratios of speed reduction, and reaches about 80 per cent with a speed ratio of 10 to 1. The mine-laying vessel *Koenigin Louise* was equipped in this way, this vessel having been sunk during the present war. Rapid wear and small clearances are the principal difficulties with this method of propulsion.

This paper has described to you some of the latest developments in marine propulsion and shows that the United States has again taken the lead in marine engineering. With the activities now going on in shipbuilding in this country, we can look forward in the near future to even greater results.

Total pounds of oil steaming, 7,310,000. Total shaft horsepower-hours, 5,538,000. Pounds of oil per shaft horsepower-hour, 1.320.

U. S. NAVAL INSTITUTE

SECRETARY'S NOTES

Prize Essays 1919

The attention of all the members and the subscribers to the U. S. NAVAL INSTITUTE PROCEEDINGS is invited to the new rules governing the Prize Essay contest for 1919 under the heading of Special Notice in this number. It is requested that authors who are writings or who contemplate writing essays submit them at their earliest convenience, as the Institute is in pressing need of articles for publication in the PROCEEDINGS.

Topics for Essays

The board of control invited the Chief of Naval Operations, Commanders-in-Chief of the U. S. fleets, Chiefs of Bureaus, Presidents of the U. S. Naval Institute and Naval War College, and the Superintendent of the U. S. Naval Academy to suggest topics for essays. The suggested topics received to date will be found opposite the Special Notice, and the list will be added to as the suggestions are received.

Essays Submitted

A few members have answered the secretary's appeal for material for publication in the PROCEEDINGS, and it is hoped that other members will in the near future submit articles for publication.

Prize Essay 1918

The Secretary of the Navy disapproved, for the present, the publishing of the Prize Essay of 1918, subject, " Letters on Naval Tactics," by Lieutenant H. H. Frost, U. S. Navy, and the essay receiving Second Honorable Mention, subject: "Naval Strategy," by Rear Admiral Bradley A. Fiske, U. S. Navy.

The Navy Department does not approve of the publishing of articles written by naval officers on the subjects of strategy and tactics during the continuance of the present war.

Membership

Since March, 413 regular members, 5 associate members and 1 life member have joined the Institute. Total membership 4865.

Deaths:

Lieutenant Commander R. M. Elliot, Jr., U. S. N.
Lieutenant H. M. Meyers, U. S. N.

Address of Members

Because of the fact that many copies of the PROCEEDINGS are being returned by the Postal Authorities, *all members are urged to keep the Secretary and Treasurer informed of the address to which* PROCEEDINGS *are to be sent, and thus insure their receipt.*

This precaution is now of particular importance as notices of changes of stations are not now available for the use of the Institute's staff.

Members and subscribers are urged to notify the Secretary and Treasurer promptly of the non-receipt of PROCEEDINGS, in order that tracers may be started. The issue is completed by the 10th of each month.

Dues

It is requested that members who have not paid their 1918 dues of $2.50, do so at their earliest convenience.

Book Announcements

Attention is invited to the List of Book Publications for a complete catalogue of books revised and republished by the Institute.

Due to a delay in receiving the approved manuscript for the Landing Force Manual U. S. Navy 1917, the Manual will not be ready for issue until about August 1, 1918.

The Naval Artificer's Manual has been revised and will be ready for issue about June 15, 1918. The revision of the "School of the Ship" has been delayed indefinitely.

Discount on Books

The five per cent additional discount allowed to purchasers of books whose accounts during a calendar month amounted to a hundred dollars or over has been discontinued.

Book Department

The Institute Book Department will supply any obtainable book, of any kind, at retail price, postage prepaid. The trouble saved the purchaser through having one source of supply for all books, should be considered. The cost will not be greater and sometimes less than when obtained from dealers.

Reprints of Articles

The attention of authors of articles is called to the fact that the cost to them of reprints other than the usual number furnished, can be greatly reduced if the reprints are struck off while the article is in press. They are requested to notify the Secretary and Treasurer

of the number of reprints desired when the article is submitted. Twenty copies of reprints are furnished authors free of charge.

Illustrations

Authors of articles submitted are urged to furnish with their manuscript any illustrations they may have in their possession for such articles. The Institute will gladly co-operate in obtaining such illustrations as may be suggested by authors.

Original photographs of objects and events which may be of interest to our readers are also desired, and members who have opportunities to obtain such photographs are requested to secure them for the Institute.

Suggestions Invited

Members are invited to send to the Secretary comments, suggestions or criticisms on the make up of the PROCEEDINGS, and to submit topics for essays.

Notice

Whole Nos. 145, 146, 147, 149, 155 and 166 of the PROCEEDINGS (March, 1913, June, 1913 September, 1913, January-February, 1914, January-February, 1915, and November-December, 1916) are exhausted; there are so many calls for single copies of these numbers that the Institute offers to pay for copies thereof returned in good condition at the rate of 25 cents per copy.

ANNAPOLIS, MD., April 8, 1918.

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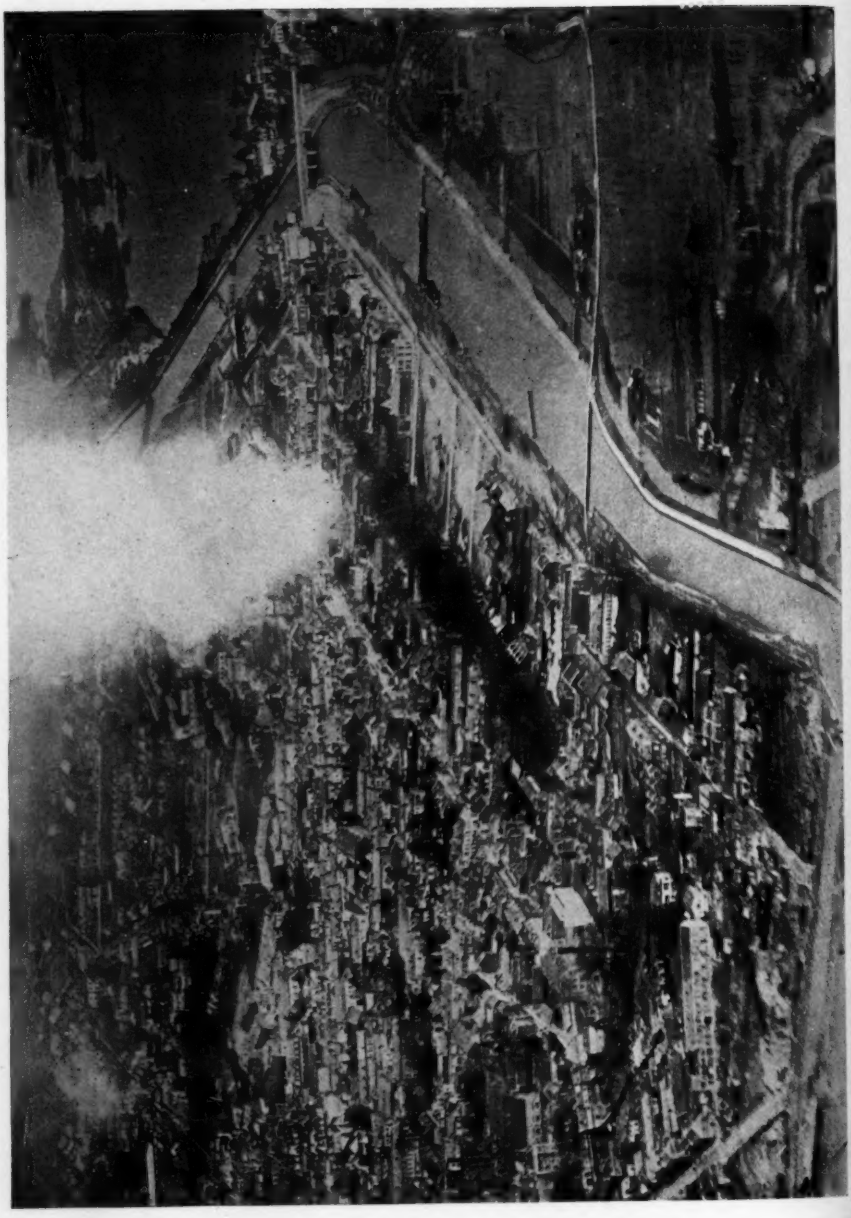

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PROFESSIONAL NOTES

PREPARED BY

LIEUTENANT GEO. B. KEESTER, U. S. Navy

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ARGENTINA

GERMANY PROTESTS ALLIED SHIP LOADING AT BUENOS AYRES.—The German newspapers, German citizens and such German officials as are left here protested vigorously to the Argentina Government against permitting an American supply ship to remain here or load meats for the American fleet. President Irigoyen, however, has informed Ambassador Stimson that the vessel may remain in port as long as may be necessary.—*N. Y. Herald*, 25/3.

AUSTRIA

AUSTRIAN NAVAL CONSTRUCTION.—Italian papers report the completion, at Pola, of a new light cruiser, said to be named *Zenta*, and described as a larger edition of the *Spaun* class. The details, which must be accepted with reserve, are as follows: Displacement, 4300 tons; speed, 30 knots; armament, six 5.9-inch guns. This may be one of the three cruisers authorized in May, 1914, none of which had been commenced prior to the war. It is further stated that between 16 and 20 destroyers have been added to the Austro-Hungarian Navy in the last three years.—*Engineer*, 8/3.

AUSTRIAN SHIPPING LOSSES.—According to the *Vossische Zeitung*, the Austrian mercantile marine—which amounted to 773,000 tons in 1914—will emerge from the war with comparatively small losses. The enemy

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has sunk or seized about 48,000 tons. About 140,000 tons have been seized in enemy countries. These losses, plus the sales to Italy before the latter entered the war, have been partly counterbalanced by the building of 125,000 tons, which are finished, or will be finished, within six months after the war. The net loss of the Austrian mercantile marine during the war will not exceed 160,000 tons, or 20 per cent, of its peace tonnage. The financial situation of the Austrian shipping firms has been strengthened to an extraordinary degree by the enormous profits accruing from the sale of ships in foreign ports. They have sold a total of 80,000 tons, of which 15,000 tons belonged to the Austrian Lloyd and 42,000 tons to the Austro-Americana, and for which they obtained prices many times the amount at which they stood in the companies' books. The Austro-Americana has received 70,000,000 kronen for the ships they have sold, whereas before the war the value of the whole fleet was entered in the books at 29,000,000 kronen.—*Nautical Gazette*, 4/4.

BRAZIL

EX-GERMAN SHIPS SEIZED BY BRAZIL ARE USED AS CRUISERS.—Two of the ex-German ships seized by Brazil have been taken into the navy of that nation. The new cruisers are the *Belmonte*, formerly the *Posen*, and the *Parnahyba*, formerly the *Alrich*. Others are now in the country's merchant marine. All are steamers save one, which is a sailing vessel. A line of first-class passenger and cargo steamers will be started to Europe and New York, with the new ships and others held in reserve, for coasting trade. The first ex-German boat to go into service is the *Hohenstaufen*, now the *Cuyaba*.—*Naval Monthly, April.*

BRAZIL WANTS U. S. TO ASSIST IN REPAIRING GERMAN SHIPS.—Brazil has asked that officers from the Construction Corps of the navy, who can be spared, be sent to that country to assist in repairing the German ships seized there. The remarkable efficiency with which the interned ships here were prepared for sea prompted the request. No order has been issued.

Although many of the interned *German vessels in Brazil* were damaged by their German crews and officers before the Brazilian seizure, in the idea that they could not be used by Germany's enemies, several of the steamers are already in service and the remainder will be in commission in the near future. As far as has been announced, but one of the ships will necessitate repairs beyond the facilities of Brazilian shipyards. The steamer *Leopoldina*, a 12,000-ton steamer, will be towed to the United States for overhauling.—*Shipping*, 23/3.

GERMANY

LONGER PERISCOPES ON GERMAN SUBMARINES.—Discussing the question of the war's influence on submarine design, an American expert says, that the danger of ramming induced a radical increase in the length of the periscopes up to about 10 meters in some of the latest German boats. By this means it is possible, he points out, to keep a lookout in fairly rough weather with several feet of periscope exposed, at the same time maintaining a sufficient depth of water above the vessel herself to practically preclude the possibility of successful ramming. The conning-tower remains as the only vulnerable part in this condition, and the destruction of the tower, while serious enough, by no means entails the loss of the boat. To reduce resistance to propulsion submerged and at the same time obtain sufficient rigidity in the free portion of the periscope above the highest bearing, the use of these extremely long periscopes has necessitated

an increase of the housing distance to the greatest practicable degree, the eye-piece in some cases being almost in the bottom of the boat when the periscope is fully housed.—[Syren and Shipping.]—*Nautical Gazette*, 28/3.

GERMANY'S TERMS FOR NEUTRAL SHIPPING.—It is reported that a serious state of affairs is likely to arise after the war for Scandinavian and Dutch shipbuilders. It is practically impossible for these to obtain the raw material for construction from this country or from any other than a German source. She first demands goods of which she is badly in need at the present time for warlike operations, then insists that the vessels constructed with her steel must be employed exclusively in German trade for five years after the war, or that they must not be chartered to or used by citizens of any of the allied countries for a similar period, and further, that in the event of sale, German buyers must have the option of purchase. In regard to ship repairing, there are similar conditions, and also it is declared that no ship shall be repaired with German steel by any firm on the German "black list." Apparently the effect of Germany's conditions is that any boat, which is even partly built or repaired by the use of German steel plates, is no longer a free trader, but is during the war and for years afterwards to be employed as Germany directs.

The difficulty is that the Swedish, Danish, and Dutch builders, whilst they recognize the serious disadvantages which directly and indirectly result from compliance with German conditions, are faced with the closing up of their shipbuilding and ship repairing yards if they refuse.—*Pages Engineering Weekly*, 8/3.

"INDEMNITIES" FOR GERMAN SHIPPING.—Herr Huldermann, a well-known director of the Hamburg-Amerika Line, indicated in a speech at Hamburg last week, that the appetites of the shipping interest have by no means been satisfied by the enormous subsidy which was granted last year by the Reichstag.

After pessimistic references to the probable duration of the war and the "economic changes all over the world," Herr Huldermann said, that, with the constant rise in price of materials, German shipping would require a large expenditure of capital in addition to the government subsidy. Consequently "one of the most important peace demands would be compensation from enemy states for the confiscation and employment of German ships." At the same time they would have to demand unconditionally the restoration of all the oversea establishments which were formerly used by German shipping and trade.—*London Times*, 4/3.

DELAYED PAYMENTS FOR DEPREDATIONS ON NEUTRAL SHIPPING.—Germany, according to a Stockholm despatch, has adopted the time check system of *paying for the depredations of her U-boats* on neutral shipping. The checks to be issued in compensation cannot be cashed until two years from date. Germany does not admit that all, or even a large number of neutral ships, were "spurlos versenkt" without warrant. But even in those cases in which she admits damages for torpedoing, no actual cash will be paid.—*Shipping*, 23/3.

GERMAN STEAMERS AT ODESSA.—At the outbreak of war only two German steamers were held in Odessa, the *Gregor*, belonging to Jebsen and Dieduchsen, of Hamburg, and the *Olga*, belonging to the Reederei A. G. von, 1896. The former has been handed over to the owner, the latter was used by the Russians as a transport and was torpedoed and sunk.—*Nautical Gazette*, 4/4.

GERMANY TO RETALIATE IN PROPERTY SEIZING.—The Spanish and Swiss ambassadors at Berlin have been directed by the German foreign office to notify the American Government that, Germany will proceed with meas-

ures against American property in Germany in the same proportion that action is taken against German property in the United States, Reuter's Amsterdam correspondent reports.—*Washington Evening Star,* 18/3.

HELIGOLAND BIGHT.—An official communication issued here to-day states that, according to a note received from the German Government, neutral shipping in the area of the Heligoland Bight, which has already been declared dangerous by the British Government, will henceforth be exposed to additional danger in consequence of measures taken there against its enemies by the German Government.

It is added that navigation in this region will only be safe if certain directions are followed, for which application may be made to the German authorities.—*Reuter.—London Times,* 11/3.

GERMANY'S PLANS FOR MINING THE SEA.—It is quite in accordance with the general fitness of things that since the very start of the war the Germans have sought to make every possible use of the mine. The submarine mine is, of course, a perfectly legitimate weapon of naval war, but it is not one of those that make any great appeal to the average clean-minded man; and it goes without saying that the Germans have never hesitated to use it, contrary to the terms of The Hague Convention to which they pledged themselves, both by scattering it broadcast on the high seas, planting wide areas without notifying shipping, and laying fields with the sole object of entrapping merchantmen. All these things were forbidden by The Hague Convention.

As the war has progressed the cult of the mine in Germany has expanded rapidly. The first fight in the North Sea occurred on August 5, 1914, when the German auxiliary *Königen Luise* was interrupted by a British destroyer flotilla while laying mines off the English east coast, and sunk. The light cruiser *Amphion* came to grief in this mine field next day. The first evidence that the Germans were fitting their ordinary warships as mine-layers came in December, 1914, when, after the "tip-and-run" bombardment of English northeast coast towns by a squadron of fast German cruisers, a great number of mines were found to have been deposited in the vicinity, the sweeping operations occupying nearly a fortnight.

The regular warships used their mines for other purposes as well. The German staff very sagely calculated from the beginning that the great majority of encounters in the North Sea would rapidly and inevitably develop into a chase—the German ship leading and the enemy pounding along behind struggling to disable her before she could reach the security of her own waters. They therefore fitted large numbers of their ships with stern shoots through which mines could be dropped in the hope that the pursuing vessel would run up against them. A later trick was to couple the mines together by a long rope, which the enemy might engage with her bows and so draw the mines into her sides. It is known that no vessel has ever been mined by these methods. Another development of German cunning in this direction, took the form of passing a long tube through a partially submerged mine, so that an enemy ship might mistake it for a periscope and ram it. It is said that this ruse was first discovered by some fishermen, who, sighting one of these decoys, really thought it was a submarine and proceeded unconsciously to put into operation certain instructions that were actually given to Russian naval officers in 1904-5. They tied a noose in a long rope, lassoed the "periscope," and towed their prize into port!

It is not known exactly when Germany first began to use submarines for mine-laying, but it is believed that at least a hundred vessels of this type have been passed into service, of which from 40 to 60 per cent have been accounted for in one way or another. The majority of them are identified by the letters "U. C.," and a number, and of these the U. C. 5, exhibited here in connection with the Liberty Loan, was a fair sample.

She belonged, however, to the earlier and smaller groups, and was fitted to carry only 12 mines. Later U. C. boats have nine tubes (where the U. C. 5 had only six) with two mines in each; and there is also in service a score or so of submarines which, originally built for ordinary U-boat work, have since been converted into mine-layers. These retain their original armament, but carry only one torpedo for each tube, instead of the usual two or three, the saving in weight being absorbed by the shipment of 36 mines with the necessary dropping gear. It is worth recalling that the first modern submarine built for mine-laying was the Russian *Krab*, launched at Nikolaieff on the Black Sea in 1912. Displacing 402 tons, this vessel was armed with two torpedo tubes, and, it is said, could carry 60 mines. The number in any case must depend upon the weight of the individual mine and the extent to which other characteristics are sacrificed, as well as upon the size of the vessel.

Within the last year or so the Germans have greatly extended their preparations for laying mines from surface ships. Only two regular seagoing mine-layers existed at the outbreak of war in the German fleet. These were the *Albatross* and *Nautilus*, built in 1906-7, displacing about 2000 tons, and designed to carry 400 mines each. The *Albatross* was driven ashore by a Russian squadron in July, 1915, was subsequently salved, and is now interned in Sweden. It is known, however, that a large number of the older small cruisers have been adapted for mine-laying, while the same purpose is borne in mind in the construction of all new ships. As a typical instance there is the new *Emden* class, at least six in number, which, on a tonnage of 5400, combine an armament of ten 5.9-inch guns and a speed of 28 knots, with a supply of 120 mines.

Much more remarkable, however, is a new group of mine-laying cruisers, believed to be six in number, of which four are named *Bremse*, *Brummer*, *Natter* and *Skorpion*. These vessels are understood to displace no more than 4000 tons, and to carry the relatively heavy armament of four 5.9-inch and eight 4.1-inch guns with a speed of 35 knots. On top of these striking characteristics, each ship is to carry a large supply of mines. The place of these vessels in the German scheme of things is not clear. They may be intended to act as a rear-guard and lay down a barrage between the German and a hostile fleet if the two should ever meet again at sea; they could impose infinite and monotonous labor on the British mine-sweeping flotillas by dashing out into the North Sea and scattering their mines indiscriminately. Or they may be intended to run the gauntlet of the North Sea blockade and deposit their spawn off the American coast or in the probable track of American transports. The enterprise of the Germans in this direction is shown by the career of the recently returned raider *Wolf*, which not only sowed mine fields at various places between South Africa and the Far East, but actually fitted out the captured steamer *Turritella*, as an auxiliary mine-layer. The latter was soon overhauled, and was scuttled by her German prize crew to avoid capture.

It is clear from these and other facts that the Germans are developing their mine-laying policy for all it is worth, and what this means to those lying within easy reach of their bases is evident from the official statement that during 1917 1000 mine-sweepers were constantly employed round the British coasts, 3000 square miles being covered every day and a total of 4600 mines swept up.—*Scientific American*, 6/4.

GREAT BRITAIN

HOSPITAL SHIPS FOR MESOPOTAMIA.—Two motor hospital ships, *H. M. 5* and *H. M. 6*, which had been constructed in Messrs. Burn and Co.'s shipyard at Howrah, were recently launched on the Hooghly. These ships, which are intended for Mesopotamia, have been specially designed to facilitate the navigation of the Tigris from Basra to Bagdad, which is exceptionally difficult. The original designs were made by the Royal

Indian Marine, Bombay, while the medical arrangements and details have been designed and carried out by Brevet Lieutenant Colonel Carter, I. M. S. There was no public ceremony.—*United Service Gazette*, 7/3.

"CHARYBDIS" CONVERTED FOR MERCANTILE MARINE.—The former British cruiser *Charybdis*, is now serving the trade between New York and Bermuda, having replaced the steamer *Cascapedia*. A chill room for the carrying of green vegetables has been installed aboard the *Charybdis*. Main deck accommodation has been installed for 41 passengers with 11 settee berths and lower deck accommodation for 32 passengers. There is no special provision for second-class traffic. The ship is insured for £100,000, and was lent by the British Government to the local authorities of Bermuda for the period of the war. The transformation of the *Charybdis* from a man-of-war to a merchantman was carried out by the Morse Dry Dock and Repair Co., South Brooklyn, New York.—*Shipping*, 16/3.

TWO DUTCH STEAMSHIPS AND ONE RUSSIAN ARE SEIZED AT HALIFAX.—Halifax, Nova Scotia, Tuesday.—Three steamships, two Dutch and one Russian, have been seized by the naval authorities here, and will before long be engaged in the British merchant marine service. The Dutch steamships, which are about 2000 tons net each, have been in Bedford basin for some time, while the Russian steamship was towed into this port on Sunday minus a propeller blade.

When the officers went on board the Dutch steamships there was no protest. The Dutch ensign was not flying, and the British flag will not be raised until the Dutch crews leave for Holland. On board the Russian ship the Russian flag was lowered, but the British flag was not raised.—*N. Y. Herald*, 3/27.

ADMIRAL SIR JOHN JELLICOE REMOVED AT OWN REQUEST.—That Admiral Sir John Jellicoe was removed from command of the Grand fleet at his own request, with the express object of dealing with the submarine menace, was a statement made by Mr. Asquith in the British Parliament on March 20, during the debate over Sir Eric Geddes' statement as to shipping conditions. The general impression had been that Admiral Jellicoe was removed from command of the Grand fleet owing to dissatisfaction over its inactivities.—*A. and N. Journal*, 23/3.

ALL LONDON WAR TALK CENTERS ABOUT SHIPS.—London's chief topic of interest in the war varies from month to month, almost from day to day. At intervals it is the fighting on this or that front, then peace terms, politics, air raids, food, manpower, American progress, Boloism, German unrest, Russian decadence, or any one of half a dozen other subjects is for a time uppermost in the public mind. Such inconstancy—for the changes are not always in harmony with the actual public importance of the events which inspire them—is common to all belligerent peoples; but in England there is one topic which runs through the threads of public interest like the master color of some intricate Oriental design—shipping. Every thread of war talk leads back to that one subject.

If it is food, the reference is early and obvious; but to take a broader subject, talk of Russia just as surely leads to it through the consideration that the ultimate fate of the Russian democracies is not going to be determined by treaties separately imposed upon them, but by the terms of a general peace, and that Germany will never be brought to terms until the shipping war has been decided beyond all doubt.

The new deliverance of Italy from Austria depends on shipping; the Italian Army can do nothing without it. If Greece is to be kept out of the toils of Mittel-Europa there must be ships to feed her and her defenders. If Switzerland is to be kept economically independent and

saved from the same threat of military absorption, ships must carry her food across the ocean and the other European neutrals, all in various degrees living under the same menace, must have each a share of the free tonnage of the world. No matter where one's thoughts may turn, to the immediate problems here at home, or to the fate of foreign millions, soon or late the conclusion comes—"and that depends on shipping."

And America? Columbia is fast becoming as closely associated with the thought of ships as ever was Britannia. In the English mind America is no longer a self-sufficient continent. For all the purposes of the war America is an island, a distinct island, in some respects a good deal more of an island than Britain is, thanks to the almost hourly ferry boat service of the channel. Even the essential difference between the food supply of Columbia and that of her sister, which in these days of strict rationing, ought, indeed, to keep in mind our insular conditions, is being put out of the reckoning by the many reports of the sacrifices and successes of your voluntary system of food saving. And needless to say, this vision of island Americans putting themselves on rations for the good of the common cause—this quite ungeographical, but not unreal view of America, as if it were an older and nearer and wealthier and more populous Australia, one part British and the other British "and then some," the growth of this sense of a material and spiritual identity is to-day so striking that to-morrow it may be more potent for good or evil than any political tie.

Consider this. When Englishmen speak of America now they speak of ships. Thus shipping, besides being the first essential stage in the journey to the common good of victory, is the keystone of Anglo-American friendship. When we hear reports of greater numbers of American troops in France we think, indeed, of the high ideals that brought them across the ocean and of the need that France and England has of them after their heavy sacrifice of life, but we think of the ships that brought them over and wonder where they were built and when. Some time after the sinking of the *Tuscania* a paragraph from the American press was passed around in a shipping office here. This is what it said: "The sinking of the *Tuscania* revealed the fact that the United States was borrowing British tonnage for the transportation of troops to Europe."

One cannot report in writing much more of the comment it caused, than to declare that the smile was always friendly. Probably the paragraph caused as many smiles in Baltimore as it did in London. Yet among those in England unfamiliar with the maritime resources of other nations, it had been just as readily taken for granted that America had all the ships she needed for herself as it was by the ingenuous news writer.

Taking the nation in its widest sense, England knows that scores of her ships are at the service of the Allies, and is proud of it; but England knows also that to take 5,000,000 or 6,000,000 men away from her for the army and millions more for munitions and army supplies, and then to ask her shipbuilders to keep pace with the dozen or more big British ships claimed weekly by the submarine pirates, and with the increasing demand for tonnage among allies and neutrals, not to mention the constantly growing needs of her own armies in France, Greece, Egypt, Palestine, Mesopotamia and India, is to ask too much.

Neither the British nor the American figures for shipbuilding in the first two months of the year were satisfactory. Extraordinary measures are being taken here to stimulate construction, but, at best, the resources of the country, severely taxed by three and a half years of war, are limited. America's output is limited only by the determination and skill with which the problem is tackled, and these are qualities held to be peculiarly American.

The maximum hope of American shipbuilding officials for this year's construction is given as 4,800,000 tons, and to judge by other figures quoted in the same report, these are dead-weight tons. This would give less than 3,000,000 gross tonnage. This is little more than England is

counting upon being able to produce with all her handicap of manpower and material, and the extraordinary demands that may be made upon her any day as the result of naval action.

It is going to be a race, then—a race between the shipbuilders of the two countries for the place of honor in contributing to those resources of the Allies which, together with the anti-submarine warfare in which Great Britain must necessarily maintain the lead, are going to prove the decisive factor in winning the shipping war. And when that issue is put beyond all doubt, even in the mind of the enemy, there will be little heart in Germany's defence of the western front and victory will be in sight.—*Baltimore Sun*, 7/4.

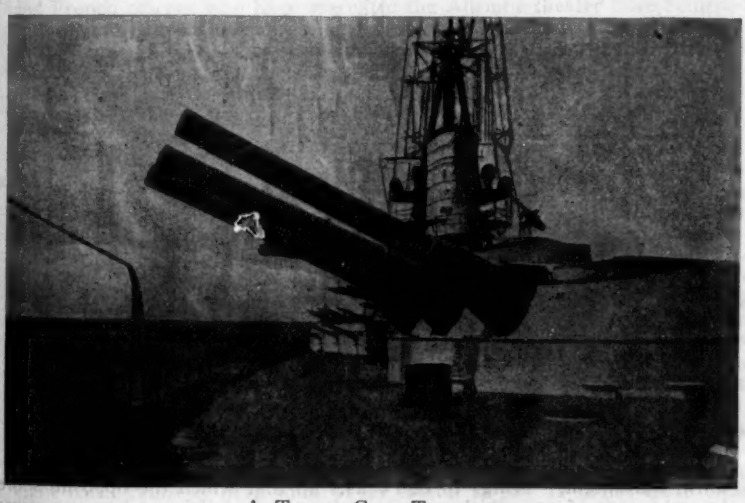
GRAVITY OF THE SHIPPING SITUATION.—There was a sharp contrast in the statement on the Navy Estimates made by the First Lord of the Admiralty on Tuesday in the House of Commons. The work of the navy called for the highest commendation; that of the men engaged in mercantile shipbuilding was shown to be unsatisfactory. In the one case, there were shadows in the picture drawn; in the other, the sunshine was rarely present. For the present we do not propose to follow Sir Eric Geddes in his review of sea operations, excepting only as they affect the submarine warfare, because that is directly associated with the main need of new shipping to ensure early success in our sea campaign. The German submarine is being defeated, but again we must assert the view that fuller information, even if it were not up to date, would have a heartening effect on the people. Certainly in the waters around the British Isles splendid results are being achieved by the anti-submarine operations of the British and American fleets, and we can accept the assurance of the First Lord, corroborated by Mr. Asquith, that, to use the latter's words, "the best brains, the most developed technical knowledge, the highest scientific reservoir of research and the highest practical experience" are being devoted to this problem. In the Mediterranean, however, there does not seem to have been the same co-ordination of effort, and the losses of merchant ships in this area—30 per cent of the total—are disproportionate to the tonnage navigating the waters. This lack of co-ordination is inherent in a war where three or four nations are allied, as there is not the same unity of control. Thus, the naval command in the Mediterranean rests with the French, and in the Adriatic with the Italians, British naval forces acting respectively under the French and Italian Admirals. We are glad to note that an allied naval council has got to work, and that Sir Eric Geddes was at their meeting at Rome. The result is that the British anti-submarine proposals put forward by our commander-in-chief in the Mediterranean have been accepted, and there is reason to hope that the same success against the German under-water attack, which is increasingly effective in the British area, will have a salutary influence in reducing losses in the Mediterranean. Another satisfactory feature is that the Greek Navy is soon to come into operations, as this navy is one of the best of those belonging to secondary or tertiary powers incidentally, also, satisfaction may be expressed with the fact that the Brazilian Navy will soon augment the allied forces in European waters, but whether in the Mediterranean or North Sea has not been disclosed. The only other point on which reference to naval operations need be made is the "tip-and-run" offensive operations of the German torpedo craft. These are inevitable, and up to a certain extent negligible. Viscount Jellicoe, in a recent speech, asked the people, when they were looking at small maps, to realize that the presence of a ship in the vast waters of the North Sea corresponded to a pin point in such maps as we are accustomed to consult. This alone shows how easy it is for a daring German commander to make an occasional incursion, with surface craft, into open seas, and, on dark nights, even into the Straits of Dover.—*Engineering*, 8/3.

SEA CONTROL IN EASTERN LITTORAL.—Besides the Black Sea and the Baltic, and in a sense more important than either, is the question of the Adriatic. Whoever controls the eastern littoral of that sea controls the whole of it. That is the lesson of the last two years which ought to have been apparent from the map even before the war was opened. It is hardly an exaggeration to say that the whole of the Dalmatian coast is one vast, deep, land-locked and protected harbor. If Trieste is the "spear point" of the Germans, Dalmatia is still more their guarantee of power in the Mediterranean, and we may be certain that any terms suggested for the west will not include a compromise upon this essential littoral. It will be won or lost by the fortune of the war. So far that fortune has here, even more than elsewhere, and especially recently, strongly favored our enemies.

No matter what concessions remain in the west, if the Central Powers retain their present position in the Balkans, and therefore upon the Dalmatian coast, they own the Adriatic, and through the Adriatic and the Bosphorus they are the masters of the eastern Mediterranean. Europe has something to say to that quite apart from our own interests in the matter, and for the future of Italy in particular the nature of the settlement is all-important. But our own interests alone are sufficient to define our position too clearly for any hope of compromise.—*Land and Water*, 21/3.

ITALY

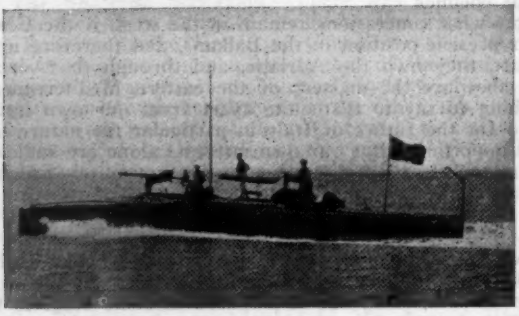
THE ITALIAN BATTLE FLEET.—The declaration of war against Austria-Hungary in May, 1915, found the Italian Navy ready and formidable as an instrument of combat, but ill-prepared in some respects to deal with



A TRIPLE GUN TURRET.

the strategical problems of a purely Adriatic campaign. The coast-line of Italy in that sea is more than 650 nautical miles in length, yet the only harbors at all suitable for naval purposes are Venice and Brindisi. The first-named, however, has been made virtually inaccessible by the numerous mine-fields which it was necessary to plant in order to guard this vitally important area against enemy attack, and the Italian fleet is thus reduced to a single base on the whole coast.

The adverse strategical conditions under which it has to fight were lucidly explained by Rear Admiral Mazzinghi in the *Navy League Annual* of 1915-16. The western coast, he pointed out, is for the most part very low, and therefore does not lend itself to fortification, except by costly artificial works. Not only is there an almost complete absence of gulfs and bays, but the conditions both of land and water are most unfavorable to the creation of naval ports. The waters are shallow, and silt up so rapidly that a fairway can be kept open only by continual dredging. The bed of the sea, composed as it is of sand or a kind of argillaceous conglomerate, enables hostile submarines to remain for long periods in ambush, without risk of injury. "The wash of the currents," says Admiral Mazzinghi, "brings to our coasts all that which the opposite shore has given up, from which reason under-water drifting mines, or mines which have broken their moorings, come sooner or later according to the season and the winds, but come without fail upon our shores. Even the sun is strategically against us. If, for instance, a naval force left the western coast, in order not to be seen, by night, with the object of making an attack at dawn—the hour most propitious for surprises—on the eastern coast, the attackers would have the sun in their eyes, while those who might be watching or moving on the Dalmatian coast would have the sun behind them."



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ITALIAN SUBMARINE CHASERS EQUIPPED WITH 400-HORSEPOWER MOTOR, AND WHICH MAKE 26 KNOTS.

The Austrians have none of these difficulties to contend with. At many points along their coast the mountains jut out into the sea, and deep gulfs lead between these lofty promontories into almost land-locked bays which can only be approached through narrow and easily defended channels. Furthermore, "a screen of islands extends along the whole of the Dalmatian coast, forming an intricate network of canals which render an approach to the coast extremely dangerous in war time, a mass of ambushes and traps—a screen behind which, by interior passages, the fleet of the adversary can securely and secretly separate into units. The sea which laps this coast has a bottom of a rocky nature and usually very deep, so that those of our submarines which desire to operate in that quarter have to keep up an incessant motion while submerged, with very great discomfort to the crew, consumption of fuel, and waste of material."

In face of the preponderance in heavy ships which the Allies have at their disposal in or near the Adriatic, it was scarcely to be expected that the Austro-Hungarian fleet would choose to accept a pitched battle. Instead, their tatics have been confined almost entirely to raids by light forces against the unprotected Italian coast and the Allies' lines of communication in the lower Adriatic. Against such tactics heavy armored ships are of no avail. The vessels of the greatest value in these circumstances are light cruisers and destroyers, and unfortunately the Italian Navy was inadequately supplied with vessels of both types. A number of modern destroyers and old torpedo gunboats have been fitted up as mine-layers, a branch of naval work in which the Italians have proved themselves remarkably efficient. The submarine flotilla includes about 30 boats, coastal and sea-going, the majority of which are of the well-known *Fiat-Laurenti* type, which has been adopted in many foreign navies. British and French officers who have served in the Adriatic theater have returned with the most favorable impressions of the quality of Italian naval material. The design of every ship is obviously the result of a careful study of contemporary principles in strategy and tactics, and betrays a certain independence of view not commonly met with in foreign naval circles.—*Engineer*, 22/3.

JAPAN

JAPANESE NAVAL EXPANSION.—Considering the difficulty of obtaining steel and the by no means flourishing condition of her finances, Japan has managed to turn out a surprisingly large amount of naval construction during the war. Since August, 1914, she has completed three battleships and three battle-cruisers, and a whole flotilla of destroyers, in addition to several special service vessels. At the present moment, according to advices from Tokyo, the Imperial Diet is considering a new program which will involve a sum of £30,054,000, to be spread over a period of six years, the vessels projected being two battle-cruisers, three light cruisers, 11 large and 16 medium destroyers, 48 submarines, and six auxiliaries. This, however, is only an interim program, and, if financial circumstances permit, a much larger scheme will be introduced in 1921, aiming at the realization of the so-called "eight-eight" system—that is to say, the creation of three squadrons, each consisting of eight battleships and eight battle-cruisers, or a total of 48 capital ships. It is not quite clear whether all these vessels are to be dreadnoughts, for under the official Japanese classification the term "battleship" covers all effective armored ships other than cruisers and coast defenders, while several armored cruisers of relatively light armament are classed with the battle-cruisers. In these two categories there are now 22 ships completed or under construction, so that even if all the existing vessels are to be included in the contemplated establishment of 48 units, no fewer than 16 new ships must be built to attain this figure, and the sum required for their construction will hardly be less than £50,000,000. Two battle-cruisers, it is stated,

are to be laid down almost at once, the contracts having been signed. The government's plan will involve a heavy increase in the naval budget, which will be met partly from surplus funds in the treasury, but mainly by increased taxation. Income-tax is to be raised from 10 to 50 per cent, in proportion to the amount, and will be levied on all incomes above £50. There is to be an almost general increase in other dues, together with a new tax on war profits. Without the assurance of popular support, it is doubtful whether the authorities would venture to impose this new burden on the nation, and the fact that the suggested measures are, on the whole, approved by the press, indicates the willingness of the people of Japan to make further sacrifices for the sake of securing the maintenance of that naval power to which they have always and rightly attached so much value.

All the vessels of the new program are presumably to be constructed in Japanese yards. The national shipbuilding industry has made remarkable progress in the past few years, and there are now two government and two private establishments capable of building warships of the largest size. The state dockyard at Kure laid down in 1905 the *Tsukuba*, which was the first large fighting ship to be built and completely equipped in Japan. This vessel was unfortunately destroyed by an internal explosion last year. Two larger ships, the *Aki* and *Satsuma*, were also begun in 1905, respectively at Kure and Yokosuka, the machinery being ordered abroad. The first all-big-gun battleship, *Kawachi*, was laid down at Kure in 1909, and equipped with turbine engines built by the Kawasaki firm. The last large Japanese warship to be built abroad was the battle-cruiser *Kongo*, which was launched by Vickers Limited in 1912. Three further vessels of this type have since been constructed in Japan. The heaviest ship which has so far been built and completed in that country is the *Fu-So*, of 30,600 tons, which made her trials in 1915. She is one of the most powerful battleships now afloat, having a main battery of twelve 14-inch guns, very good armor protection, and a speed of 22.5 knots. Three later units of the *Fu-So* class have since been completed. The principal vessel now under construction is the battleship *Nagato*, to displace 32,000 tons and be armed with ten or twelve 16-inch guns. Her designed speed is 24 knots. It will be seen, therefore, that Japan is now in a position to turn out warships of a size and power equal to those of any other country, and has completely emancipated herself from her former dependence on foreign industry. Until very recently her ships were armed almost exclusively with guns of British manufacture. But the state arsenal at Kure now builds naval ordnance of every type, and has already supplied the complete armament for the *Fu-So* and the three later ships of the *Kongo* class. It is understood that armor plates are still purchased abroad, though in the near future this material will be supplied by the home industry.

Rapid as was the growth of Germany's sea power in the last generation, the development of the Japanese Navy in the corresponding period was, in many respects, still more remarkable, in view of her much smaller resources. Prior to 1866, Japan possessed not a single war vessel worthy of the name. In that year she purchased the armored ram *Stonewall Jackson*—subsequently named the *Adzuma*—from the United States, and soon afterwards placed contracts in England for several sea-going armored vessels. As early as 1865, a dockyard was laid out at Yokosuka, and equipped with facilities for constructing and repairing ships of war. In connection with this yard a school was started for the technical training of the workmen, and a few years later the entire establishment was under native management. A number of officers had previously been sent from Tokyo to study the shipbuilding and engineering methods in vogue in the principal European dockyards. At Yokosuka in the early 'eighties the gunboat *Seiki* was launched, she being the first modern warship ever built in the country. The hull, machinery, and fittings were all constructed in the yard, and only the armament was purchased abroad. This little vessel,

of 810 tons and 11 knots speed, proved most successful in every way, and in 1880 she made a cruise to England, *via* the Suez Canal. From its modest beginning in 1865, the yard at Yokosuka has grown into a splendid establishment, which in size and equipment comes within measurable distance of the finest naval arsenals in Europe. Of the six building slips, only one is capable of taking the largest vessels, but two other dreadnought berths and a large dry dock are under construction. In 1914, the employees at this dockyard numbered 8000. The Kure dockyard is somewhat smaller, but the equipment is thoroughly up to date. It has three slips and one dry dock, in which last the *Fu-So* was built. Third in importance is the yard at Sassebo, which has several large docks and slipways, and specializes in the construction of light cruisers. There are six smaller yards which undertake repairs and a limited amount of small construction. The principal private establishments are the Kawasaki, at Kobe, and the Mitsubishi, at Nagasaki. Vessels of the largest dimensions have been built, engined, and completely fitted out at both yards, which are well supplied with docks, slipways, etc. The universal demand for new tonnage arising out of the war has led to a great extension of the shipbuilding industry in Japan. Existing yards have been enlarged, and new ones created by private enterprise. But all marine work, whether naval or mercantile, has been seriously retarded by the dearth of steel, and at the present time negotiations are proceeding with the United States Government to relieve this situation, Japan having offered to hand over a portion of her mercantile marine in exchange for the structural material she urgently requires. It is interesting to learn, from the Imperial Ministry of Marine, that several of the fine Japanese destroyers which now form part of the allied naval forces in the Mediterranean have been built in Japan during the war. The publication of the new building program to which we have referred suggests that the Japanese Government intends to adopt a vigorous policy of naval development as soon as conditions again become normal. In the far east, at all events, the idea of universal disarmament at the conclusion of this war does not appear to find favor.—*Engineer*, 8/3.

JAPAN NOT CONSIDERING INTERVENTION IN SIBERIA.—Premier Terauchi told the Japanese House of Peers on March 28, that the government is not considering intervention in Siberia, where enemy war prisoners are no real menace, according to dispatches from Tokyo.—*Oswego Palladium*, 23/3.

SOVIETS MAKE INQUIRIES IN REGARD TO JAPAN'S PLANS.—The Soviet commissaries recently directed Foreign Minister Tchicherin to make inquiries of America, England and Japan, regarding Japanese mobilization to occupy Siberia.

The military commission, headed by War Minister Trotsky, is considering plans for defence.—*Oswego Palladium*, 23/3.

JAPAN'S MINISTER DENIES AGGRESSIVE POLICY IN SIBERIA.—The statement made by Foreign Minister Motono in addressing a joint session of Parliament to-day, that in the event Japan is compelled to send troops into Siberia there is no intention whatever of treating Russia as an enemy, and that Japan will never adopt an aggressive policy, such as Germany is pursuing in European Russia, has excited especial interest.

The Ozaki opposition has criticized the government for not making a similar declaration before, when Russia was at a loss to know what to do. It is believed that Russians assisting Germans in Siberia should be regarded as enemies.

Viscount Yasuya Uchida, the Japanese Ambassador to Russia, who has arrived here, is quoted as saying that he doubts that Germany intends to attack India.—*N. Y. Herald*, 2/4.

NETHERLANDS

NEW DUTCH CRUISERS.—Two warships of a very interesting type are now under construction for the Dutch Government at Amsterdam and Flushing respectively. They are the protected cruisers *A* and *B*, which were laid down in May, 1916, and are due for delivery in the current year. The plans were prepared by the Krupp-Germania yard at Kiel, which is also supplying part of the material, technical supervision, and a number of skilled workmen. The same firm is likewise building the machinery and boilers for both these vessels, which will, therefore, be largely of German origin. Intended for service in the Dutch colonies, the cruisers will have the unusually high displacement of 7100 tons, the other dimensions being as follows: Length on water-line, 502 feet; beam, 52½ feet; mean draft, 18 feet. There is to be a complete belt of 3-inch armor on the water-line, besides armor protection to the funnel bases, fighting positions, and guns. Each cruiser will be driven by three sets of Krupp-Germania turbines, operating three propellers, and supplied by eight boilers, probably of the Schulz-Thornycroft type. The machinery is designed to develop 65,000 shaft horsepower, equivalent to a speed of 30 knots. All the boilers are to be fired with liquid fuel, of which a quantity will be carried sufficient to give a steaming endurance of 5000 nautical miles at 12 knots. In view of the considerable displacement the armament is not heavy. It comprises ten 5.9-inch 50-caliber Krupp quick-firers, four 12-pounder semi-automatic guns for use against aircraft, four machine guns, and two broadside torpedo tubes. The 5.9-inch weapons are disposed in such a way as to give a broadside fire of seven, and an axial fire of four guns. The forecastle deck is carried right aft, giving the vessels a high freeboard, and, in spite of the fine lines, they promise to be excellent sea boats. As German yards themselves are known to be short of skilled labor and materials, it seems doubtful whether they will be able to spare the Dutch establishments much of either commodity, so that the completion of these two cruisers is likely to be delayed. Their names, it is understood, will be *Java* and *Sumatra*, and the building of a third vessel of the same type, to be named *Celebes*, is said to be under consideration. The general design has may features in common with that of the new American scout cruisers authorized in August, 1916, whose characteristics—as given in the annual report of the Bureau of Construction for 1916—are as follows: Displacement, 7100 tons; speed, 35 knots; length, 550 feet; breadth (extreme to outside of armor), 55 feet, 4 inches. Armament: Eight 6-inch guns, two 3-inch anti-aircraft guns, two twin torpedo tubes. "There high-powered machinery installations," it was added "will be protected by light, but efficient, vertical and horizontal armor."—*Engineer*, 8/3.

ALLIES SIEZE DUTCH SHIPS.—In a single day, the United States Navy crews took possession of 68 Dutch ships with a total tonnage of 470,000, that were lying in the various ports of the United States. At the same time, Great Britain took over Dutch ships with a total tonnage of 400,000. The total of 870,000 tons thus added to the shipping of the Allies is about 14 per cent of the shipping losses of the world for the year 1917.—*Scientific American*, 6/4.

GERMAN PRESS COMMENT.—The text of this statement in the *Vorwärts*, as telegraphed here, runs: "If the enemy insists on violating international law the result is that Germany must exercise the right of protection. Hitherto the Netherlands has resisted every attempt to infringe her neutrality, and it is to be expected that our neighbor will still refuse, voluntarily or involuntarily, to sacrifice one tittle of her rights. From the point of view of her own self-protection Germany can only recognize as correct the attitude of strict neutrality hitherto adopted by the Netherlands."

The *Lokalanzeiger* says: "We shall do everything in our power to protect Dutch ships lying in enemy harbors from employment by the Entente."

The use of the word "protect" in this passage is a characteristic piece of humbug. The *North-German Gazette* declares, according to a telegraphic summary, that the employment of Dutch ships by the Entente represents an advantage to the latter which cannot be compensated by any concession to Germany.—*London Times*, 18/3.

DUTCH PRESS PROTEST.—The Hague, March 16.—It is impossible for Holland to give an affirmative answer to the Entente's proposals concerning Dutch ships, says the *Nieuwe Courant*.

"It is an act of violence," it adds, "to which we are subjected by the rulers of the ocean, and nothing makes us so bitter as the attempt being made to base it on the so-called rule of international law—the antiquated Angary law—which is in nowise applicable here."

Amsterdam, March 16.—Discussing the Dutch shipping question, the *Tyjd* says:

"We shall have to acquiesce, but such rough misuse of power will not be forgotten by our people."

In an article vehemently denouncing the Allies, the *Handelsblad* says:

"We cannot think what our government will do. Will it publish a protest refusing to give its approval to piracy and leave the matter as it is, or will it make the best of a bad job and make an exchange for what will be taken away? If it is not exchanged will it request the ministers of these piratical powers to pack their trunks and depart? We should not lose much thereby. We do not know what the government will do and would not wish to advise it. At such a moment it must be left to the government's discretion to take that decision which is least harmful to the country and the people."

In the same article, however, the *Handelsblad* admits that it is unfortunately true that Holland is the only northern neutral which has done nothing to combat German submarine methods. It attributed the country's present position to the spirit which has dictated such an attitude.

The *Telegraaf* advocates acceptance of the offer of the Entente governments, adding:

"Holland's existence as a free and independent nation and the possession of its colonies are at stake. By choosing the right path the government has it in its power to maintain the liberty of the nation, or irrevocably deliver it to the mercy of Germany, which in its bid for world domination has long had envious eyes on Holland. The Dutch nation will not permit itself to be delivered over the German junkers."—*Washington Evening Star*, 18/3.

FORTY-ONE DUTCH VESSELS SEIZED AND PUT IN AMERICAN SERVICE.—Acting upon orders from Washington, numerous naval tugs and harbor patrol vessels were taken over by a brigade of naval reserves mustered on Ellis Island. These barges proceeded to the anchorages of Dutch steamships in the port of New York, or to their berths beside piers. Forty-one Dutch steamships were boarded. No move was made to take possession of the *Nieuw Amsterdam*, which was to leave shortly for Rotterdam, Holland.

The appearance of the armed seamen on board the Dutch vessels meant that by their action fully 250,000 tons of shipping was added to the American merchant marine. Masters of steamships, who had been warned previously of the intended visit, were ready to receive the details of men. Officers commanding the reserves were politely informed the act of seizure was duly recorded in the log, where a protest was entered. None of the officers or men of the crew of any vessel boarded was molested and for the time being they will remain on board.

It was expected many of the crew on each vessel would take advantage of the invitation extended to pass formally through the immigration routine of entering the United States. One inspector of immigration went with

the navy forces to each steamship to arrange the details, compile lists of the crew, etc. Those not desirous of entering the United States as citizens, enroll in the reserve forces for duty on board the steamships or enlist in the army, will be given an opportunity to return to Holland. It was understood that hundreds of them would board the *Nieuw Amsterdam* and return at the expense of the United States Government.

The customs service was represented at the seizure by numerous inspectors, who also boarded the Dutch steamships. Several men were in the detail going on board the one passenger steamship that was seized. Only one inspector went upon each of the smaller freight steamships.

The scene on board the vessels at the seizure was in no way startling. The navy boats pulled alongside and the boarding parties were met by the masters or first officers of the vessels. The stars and stripes were raised on board many of the steamships to replace the flag of the Netherlands. No protests were made—excepting the formal protests appearing in the log of each vessel.—*N. Y. Herald*, 3/22/18.

DUTCH SHIPS SAFE IF ON SEA AT TIME OF SEIZURE ORDER.—Dutch steamships en route to the United States at the time the Dutch craft in American ports was requisitioned will not be taken over when they arrive at ports of the United States. This decision was made by the War Trade Board, which announced that inasmuch as the requisitioning had been enacted only to restore to their former activity the Dutch steamships that lay in American ports and harbors, there was no reason for taking charge of the Holland vessels that were on the seas and headed toward American ports at the time of the requisition.—*N. Y. Herald*, 2/4.

SHIPS WITHOUT SEXTANTS.—*Requisitioned Dutch Craft Stripped of Navigating Apparatus, it is Discovered.*—Requisitioned Dutch ships when taken over by American naval officers were found to have been stripped of their sextants and other valuable navigating instruments. Many had been taken by ship's officers, who were about to sail for home on the liner *Nieuw Amsterdam*, and the delay of 48 hours in the vessel's departure was said to-day to have been due to the necessity for recovering them. Some of the sextants were the personal property of the officers, who were prepared to sell them to the Navy Department.

More than 1000 members of the Dutch crews have sailed for home. They are being replaced by naval reserves and civilian crews.—*Washington Evening Star*, 30/3.

RUSSIA

THE RUSSIAN FLEET.—By Arthur Pollen.—The political and military results of the Russian surrender to Germany, and now of the German advance towards Petrograd, may have a profound influence upon the naval war. The fall of Riga in September, followed a month later by the naval occupation of that gulf, were the preliminary steps which secured the necessary line of communication before an advance on the whole front from Dvinsk northward. Without the transport facilities that an unbroken chain of sea supply could give from the German Baltic ports to a series of advanced bases on the east coast of the gulf, the difficulties in the way of the march on Petrograd would have been very great indeed, whereas with such a line of communications the thing was made comparatively simple. Before this is in print it is, therefore, highly probable that Reval will have fallen and possible that Kronstadt will have surrendered. Both are inevitable events, whether they happen soon or late, and with these surrenders the Russian fleet—if intact—must fall into German hands. For it cannot take refuge in Helsingfors, which seems to be virtually under German control already, and there seems, therefore, to be no third possibility. How will this affect the situation in the North Sea?

We have first to ask what are the constituent ships of the Russian fleet at the present moment. The first dreadnoughts of the Russian 1910 program, *Poltava, Sevastopol, Petropavlovsk* and *Gangoot* were all completed, fully commissioned and in a high state of war efficiency before the end of 1914. These four ships were laid down, two in July, one in August and one in October, 1911. They had been completed therefore in approximately three years. At the end of 1912 and the beginning of 1913 the four battle-cruisers, *Borodino, Ismail, Kinburn* and *Navarin* were laid down, I think, on the same ways that the four battleships had previously occupied. They were due for completion by the end of the summer of 1916, but I am unaware of any reliable information that any of the four was commissioned before the revolution of a year ago. But none of the four can be very far from completion, and if the Germans seize Petrograd they will get the Galerny and Baltic works, and all the Imperial arsenals, and will therefore have no difficulty in finishing their equipment for sea, assuming that no irreparable damage has in the meantime been done to them. Besides these capital ships there are two modern light cruisers of between 4000 and 5000 tons and with a speed of over 27 knots, *Mooraviev, Amursky* and *Nevelskoy*, that should have been completed soon after war began, and there were four others displacing about 2000 tons more each, the *Svietlana, Grieg, Bootakof* and *Spiridof*, which, like the battle-cruisers, were due in 1915 and 1916, and are presumably either ready for commission or nearly ready. Hardly less important are the destroyers of the 1912 program, 36 in number, all of which I believe were at sea early in the war. The foregoing, then, dreadnoughts, battle-cruisers, light cruisers and destroyers, are the completed or nearly completed modern vessels which constitute the main assets of Russian naval force. Of the older craft the two pre-dreadnoughts, *Imperator Pavel* and *Andrei Pervosvanni*, are not without value, and two of the older class of protected cruisers, the *Admiral Makaroff* and the *Bayan* still survive. The armored cruiser *Rurik* is, in modern conditions, of very little use.

If the Germans can immediately reinforce the High Seas fleet with the four dreadnoughts, our enemy has at a stroke increased his main battle strength by at least 20 per cent in numbers and by considerably more than 25 per cent in gun-power. The four three-gunned turrets of our late ally's battleships are placed along the center line, so that the whole 12 guns can be used as a broadside over an arc of about 130 degrees. Of Germany's possible 24 battleships, 13 have a broadside fire of only eight guns; the four *Koenigs* have 10, and if the *Worth* class are finished, it is supposed that they will have eight only, but all of larger caliber. An addition of 48 guns in the line of battle, then, would be nearly equal in fire effect to the addition of six ships of the *Kaiser* class. This is manifestly a very formidable reinforcement.

If the four battle-cruisers become available, the addition to the German main scouting force is necessarily more important still. So far as we know from pre-war information, the German strength in battle-cruisers available during the war were the seven built for the German Navy and *Salamis* building for Greece. Of these *Goeben* is at Constantinople, *Lutzov* and *Salamis* (re-named *Pommern*) were lost at Jutland, and there have been persistent rumors that *Von der Tann* was sunk sometime before Jutland. That would leave the German fleet in possession of *Derfflinger* and the third ship of her class, supposed to have been named *Hindenberg*, with *Seidlitz* and *Moltke*. Both of the latter carry only 11-inch guns, though with a possible broadside of 10 at a small arc. The addition of the four *Borodinos*, then, would add an artillery strength much greater relatively than the *Gangoots* would add in the case of the battleships. The only disadvantage of the Russian battle-cruisers is that their speed, namely 26½ knots, is inferior to that of the ships which von Hipper commanded at Jutland. It is quite unnecesarry to dwell at length on the value of light cruisers and modern destroyers. The importance of additional light forces

is immense in the phase of war now going forward in the North and Narrow seas, and were there to be a fleet action it would be greater still.

When Riga fell, I wrote an article in the *New York Tribune* pointing out that, if there were the faintest chance of the Russian ships being surrendered to Germany an entirely new value would be given to the help that the American battle fleet could afford in northern waters. It has been a constant matter of comment that the public has heard of no such concentration of allied naval battle strength in the North Sea as has taken place on land, in the case of the military forces. There were two obvious reasons against such a concentration being made. First, it was unnecessary so long as the British fleet possessed the immense preponderance that has existed since the beginning of the war. Secondly, while the co-operation of an English and a non-English speaking naval force was feasible in such operations as took place off Gallipoli in the spring of 1915, there would be enormous difficulties in securing a similar co-operation in the case of fleets maneuvering at sea. Especially would this be the case when ships are for more than half their time at sea working in close order and in the darkness. The secret of successful naval tactics is to be found in bringing the means of communication to perfection. The difficulties that have stood in the way of an admiral making himself promptly understood—and obeyed—by all the vessels under his command is the explanation of so many naval actions having proved inconclusive in the past. It was perhaps the greatest of all Nelson's triumphs that he surmounted this difficulty as it never had been surmounted before. And he did it less by the invention of the more intelligible signals than by making signals so largely unnecessary. With every captain knowing precisely what was in the admiral's mind, the most effective co-operation of every unit was generally secured without further ado. And as we know from the Jutland dispatch, the co-operation with the light cruiser squadrons with the battle-cruisers on that eventful day was practically perfect, just because it was instinctive. Again and again the commander-in-chief's wishes were anticipated by his rear admirals and commodores, because long and intimate intercourse had made his wishes in any set of circumstances easily divined. Now mutual understanding of this kind might, indeed, ultimately be reached between a British admiral and a division of French or Italian warships, but it could only be obtained after long and difficult training. If then it has not been attempted to incorporate considerable French or Italian units in the British battle and cruiser fleets, it may be chiefly because the situation did not make it necessary, and there seemed no likelihood of it becoming necessary—so that the difficulties of securing homogeneity of signals, and so forth, did not in fact even have to be faced.

But should the Germans gain the immediate reinforcement of the Russian battleships, with the prospect at a later date of being able to add four battle-cruisers as well, a position that a year ago was entirely unexpected will have arisen, and new naval dispositions will become imperative. There can be little doubt that this will take the form of American co-operation on the greatest scale. Fortunately in this case the difficulties presented by French or Italian co-operation would be absent. The differences in tactical methods and in the formulæ of signals and of their significance are real—but unity of language would soon bring about unity of method.

The United States Navy, as has often been pointed out in these columns, could reinforce us immediately with three divisions of four ships, with a reserve of two, if not three, to replace any unit temporarily under repair. They are magnificient ships, so exceptionally armed, manned and officered, as to promise a high standard of war efficiency after the briefest possible period of special training in war conditions. And, let it be added that, were Admiral Mayo ordered to join Sir David Beatty with the whole of his fleet, it would be a decision that would give infinite satisfaction to the whole of the American Navy. Against a possible addition to the German fleet of eight ships, there would, therefore, be a corresponding

increase of the allied main fleet by no fewer than 14. And, once more, we must make the point that the American ships are more powerfully gunned than the Russians, so that while restoring the old relative strength in numbers, the relative gun superiority would also be maintained.

It must not be assumed that we have to look upon the incorporation of the Russian ships with the German Navy as a certainty. Some patriotic officers, if any survive, may succeed in destroying them first, and if they are not destroyed, they may be in such ill repair that it would take a long time to make the four battleships seaworthy and fit for action. In the case of the battle-cruisers, the delay in their being fit for use might be greater still. On all these points the government has no doubt the latest and best information. There may be no danger at all; it may be a danger which cannot materialize for many months. The only satisfactory feature of the situation is that, if it does materialize, the American fleet alone can restore the balance.—*Land and Water, 28/2.*

OCCUPATION OF ODESSA.—The occupation of Odessa by the enemy—an immediate and necessary consequence of the Rumanian peace—does more than convert the Black Sea into a German lake. It also puts a part of the Russian fleet into German hands and promises the complete control of that fleet in the near future. When the ice melts in the Baltic we shall have the enemy reinforced upon the north and upon the south with nearly every unit of the Russian Navy, subject only to such destruction as calculated measures (or more likely neglect) may have worked.

One of the effects of the position in the Black Sea will be that the handing over of Georgia to Turkish garrisons can be fully supported by the Central Powers, and further, that the greater part of the oil supply of the old world is now in the enemy's hands. Whether the granary of southern Russia is in a condition to supply wheat this year to the enemy in any sufficient quantity, and, if it is, whether the condition of communications will permit of any great transports, may be doubted, but the position for next year is secure.

Here, therefore, as in every other point upon the board, the issue of the struggle in the west is decisive. If a victory under arms in the west is denied us the enemy has won the war, and our immediate future will be a preparation for the next struggle under conditions far less favorable.—*Land and Water, 21/3.*

SPAIN

SPANISH SHIPS KEPT OFF SEA BY HUNS, WASHINGTON FEARS.—Official confirmation of reports that Spanish ships about to leave for the United States had been held up has led to the suspicion that Germany has made demands upon the Spanish Government with a view to preventing the carrying out of the trade agreement recently made with this country.

State Department officials said that no official advices had been received indicating that the German Government had threatened to blockade Spanish ports with submarines, if an attempt were made to carry out the agreement. Señor Riano, the Spanish Ambassador, also said that he had no information from his government on the subject.

Germany, it is assumed, will spare no efforts to prevent the manufacture in Spain of supplies for the American and allied armies in France, in return for which Spain was to receive certain raw materials from the United States.

It is known that conditions in some of the industrial districts in Spain are serious. Spanish ships were held in American ports for so long, while negotiations with the Spanish Government were in progress that the surplus stock of cotton was depleted. Many of the factories in the industrial districts will be obliged to close down if shipments from the United States are longer delayed.

A submarine patrol at Gibraltar by the Germans could effectively shut off Spanish commerce, forcing Spain to suspend its commerce or arm its vessels for protection against submarine attack.—*N. Y. Herald*, 8/4.

TEN VESSELS HELD IN SPANISH PORTS BY U-BOAT MENACE.—Ten large transatlantic steamships cancelled their trips to America and were lying idle in various harbors of Spain on account of the submarine menace. Thousands of tons of freight was lying on the piers at Cadiz, Barcelona and Corunna awaiting cargo space. Heavy losses were being sustained in consequence.

The government received a great number of telegrams protesting against the blockade and asking re-establishment of commerce with America.—*N. Y. Herald*, 1/4.

GERMANY GIVES FREEDOM OF SEAS TO SPANISH SHIPS.—After lengthy negotiations between Spain and Germany, it is believed that transatlantic voyages by Spanish ships will be resumed. About 1000 passengers and more than 2000 sacks of mail are awaiting departure. It is reported that Germany will permit the mail and passengers to start, but has forbidden the transport of merchandise.—*N. Y. Herald*, 4/4.

FEARS SEIZURE OF SHIPS BY UNITED STATES.—Apparently fearing the United States would requisition her ships and that Germany would torpedo them, the Spanish Government has recently kept Spanish vessels in home ports. It was reported recently that these vessels will be released soon, presumably as a result of assurances that the United States does not intend to seize them.—*N. Y. Herald*, 8/4

SCANDINAVIA, ETC.

COAST-DEFENCE BATTLESHIPS.—Some very powerful little vessels have been, or shortly will be, incorporated in the lesser navies of northern Europe. The *Sverige* has already been commissioned in Sweden, a sister-ship, *Drottning Victoria*, is reaching completion, and a third unit of the class *Gustav V*, will soon be launched at Malmö. It is not known whether the two coast defence ships *Bjoergvin* and *Nidaros*, which were laid down for the Norwegian Government, have yet been delivered, but both were put afloat in 1914. Denmark has lately completed the *Niels Juel* for coast service, and the Dutch Government is said to be contemplating the construction of two improved editions of the *Zeven Provincien* immediately after the war. The following table presents the main characteristics of the most modern coast defence armored ships in European service:

	Sweden	Holland	Norway	Denmark
	Sverige	Zeven Provincien	Bjoergvin	Niels Juel
Length, feet	392	333	290	295½
Beam, feet	62	56	55½	53
Draft, feet	20½	20½	16½	15½
Displacement, tons	6,800	6530	4852	3900
Designed H. P.	20,000	8500	4500	5500
Speed, knots	22.5	16	15	15.8
Armor—Belt	8-in.	6-in.	7-in.	7-in.
Turrets	8-in.	10-in.	8-in.	7-in.
Armament	4 11-in., 45 cal. 8 6-in., 50 cal. 10 12-pounders 2 torpedo tubes	2 11-in., 42 cal. 4 5.9-in. 40 cal. 10 12-pounders (?)torpedo tubes	2 9.4-in., 40 cal. 4 6-in., 50 cal. 6 4-in. 2 torpedo tubes	2 12-in., 50 cal. 10 4.7 in., 50 cal. 2 6-pounders 4 torpedo tubes
Weight of broadside fire	3540 lbs.	1370 lbs.	1000 lbs.	2248 lbs.

The above details show that vessels of very moderate size may be given a considerable degree of fighting power. Considering her limited tonnage the *Sverige*, in particular, attracts attention by reason of her high speed and formidable battery, coupled with fairly good protection. She draws at least 4 feet of water more than the earlier armored ships of the Swedish fleet. The Dutch vessel, *Zeven Provincien*, though but little smaller, is inferior in almost every respect, but she has a much greater coal capacity. The *Niels Juel*, the smallest of the above group, has a surprisingly powerful armament; indeed, in proportion to her displacement she is probably the most heavily armed vessel afloat.—*Engineer*, 15/2.

UNITED STATES

LAUNCHING OF MINE-SWEEPER.—The *Finch*, a steel mine-sweeper, was launched at the Standard Shipbuilding Yard on Shooters Island. The *Finch* is 180 feet over all, 22 feet beam, will draw 10 feet of water and will have a speed of 12 knots per hour.—*Nautical Gazette*, 4/4.

MARE ISLAND MAKES RECORD ON DESTROYER "TAYLOR."—Mare Island made a record on the destroyer *Taylor*, which was launched on February 14, 66 per cent complete, within four months after the keel was laid. The pre-war records for this amount of work on a destroyer averaged about 24 months and the speed with which the *Taylor* was made ready made a record not only for navy yard construction but for private work. As a result of the excellent showing made by Mare Island, the secretary has announced that the naval station will be given several more contracts for destroyer work.—*Naval Monthly, April.*

"IRIS" TO BE USED AS CADET TRAINING SHIP.—The *Iris*, former mothership of the Pacific torpedo flotilla and for years a fixture in San Diego harbor, is to be used as a training ship for cadets in the American merchant marine, according to official announcement made yesterday by representatives of the United States Shipping Board.

The *Iris* is now at Hanlon's shipyard, Oakland, having been sent there for repairs a few days ago after the vessel had been badly battered during a voyage from Honolulu to San Francisco.

It is planned to place about 300 cadets on the vessel, where they will be instructed in navigation, sailmaking and the handling of cargo by competent teachers. On its training cruises with the cadets the *Iris* will ply between Seattle, San Francisco and San Diego.—*S. and W. Union*, 28/3.

DESTROYERS BUILDING.—Homer L. Ferguson, president and general manager of the Newport News Shipbuilding Company, announces that the company is building 30 destroyers for the government, and that more destroyer contracts will be taken by the yard, if such is the desire of the shipping board.—*Nautical Gazette*, 28/3.

CAPTAIN OF PORT FOR PHILADELPHIA.—A big boost to the business of the port of Philadelphia was given a few days ago when the government issued an order directing that all explosives for export from both Canadian and American factories must be loaded at Philadelphia, instead of New York and other Atlantic ports. The Treasury Department has decided to detail an officer from the navy to supervise the work who will be known as the captain of the port. He will have a steam vessel under his command manned by a naval crew. The port captain will not only designate anchorages for vessels loading ammunition, but will also superintend loading. The new order will be effective as soon as an officer can be detailed from the navy to act as the captain of the port.—*Shipping*, 13/4.

CUMBERLAND HOSPITAL TAKEN OVER FOR NAVY.—The Cumberland Street Hospital, in Brooklyn, which is within two blocks of the New York Navy Yard, will be taken over by the government to-day to be maintained as a naval hospital. This institution will be able to care for about 200 patients. For the time being the personnel of the hospital will remain unchanged. Patients now at the hospital will be transferred to three other institutions in Brooklyn—the Kings County, Coney Island and Greenpoint hospitals.—*N. Y. Herald*, 3/4.

SERIOUS IF TRUE.—During the comparatively short time since the navy took over several of the ocean-going tugs, which were formerly so frequently seen in this harbor, four of them have been lost at sea. When running here, these boats could and did stand any kind of weather at sea. After 50 years or more of building tugs for ocean work, the designers of all four of these tugs, with half a century of precedent to go by, built tugs which were staunch and seaworthy anywhere. Disasters to tugs were practically unknown in the merchant marine. When the navy took over the tugs, the captains and crews who had manned them were sent ashore. Naval reserves were put on board, with 40 men to a crew, where about 15 had been a full complement before. The deck houses, formerly low and small as possible, were enlarged and guns were mounted on the tops of the houses in some cases. The original designers of the tugs avoided every possible bit of top-heaviness.

Men of the merchant marine say that the changes which have been made in the tugs have rendered them top-heavy, and say further, that that is one of the reasons for the trouble which has followed. Four tugs whose names in their merchant marine days were the *Concord, Edgar F. Luckenbach, Fred E. Richards* and *Jack T. Scully*, have been lost recently, with heavy loss of life. A well-known Providence captain was at Norfolk, in his vessel, before the *Jack T. Scully* went to sea with her crew of naval reserves. This captain says it was common talk among the practical master mariners there that the *Scully* would be lost the first time she went out to sea. The prediction proved true.—From the *Providence Journal*.—*Marine Journal*, 23/3.

NAMES FOR NEW DESTROYERS.—Secretary Daniels announced on March 10 the names of five new destroyers named for distinguished officers of the U. S. Navy as follows:

1. The *Thatcher*, in honor of Rear Admiral Henry Knox Thatcher, a native of Maine, who in 1862-63 commanded the *Constellation* in the Mediterranean watching for Confederate cruisers, and in 1864-65 commanded the *Colorado* and a division of the North Atlantic blockading squadron in the attacks on Fort Fisher. His last duty was as port admiral at Portsmouth, N. H., 1869-70. He died at Boston, April 5, 1880.

2. The *Palmer*, in honor of Rear Admiral James Shedden Palmer, a native of New Jersey, who entered the navy in 1825 as a midshipman, and commanded the *Flirt* in the blockade of Mexican ports during the war with Mexico. During the Civil War among other duties he was Farragut's commander in the *Hartford* when he ran the batteries at Port Hudson in March, 1863.

3. The *Lamberton*, in honor of Rear Admiral Benjamin P. Lamberton, a native of Pennsylvania, who was Admiral Dewey's chief of staff at the battle of Manila Bay and on June 10, 1898, was advanced seven numbers for eminent and conspicuous conduct in battle. He was retired February 25, 1906, and died June 9, 1912.

4. The *Tattnall*, in honor of Captain Josiah Tattnall, a native of Georgia, who entered the U. S. Navy as a midshipman in 1812, served in the seaman's battery on Craney Island in the War of 1812, and with a force of navy yard workmen took part in the battle of Bladensburg. During the Algerine War he participated in the engagements of Decatur's squadron

and in 1823-24 served in the *Jackal* in the suppression of piracy in the West Indies. He commanded the Mosquito Division in the war with Mexico, where he was severely wounded. The state of Georgia gave him a vote of thanks and a sword. While flag officer of the Asiatic squadron in 1857, finding China at war with the English and French fleets, he joined them at Pei-ho. Shortly before an engagement his flagship grounded and was towed off by English boats. This service was taken as a justification for subsequent active participation in the attack on the Chinese. In explanation of his violation of neutrality Tattnall exclaimed, "Blood is thicker than water," a phrase that became historic.

5. The *Kennison*, in honor of Acting Volunteer Lieutenant William W. Kennison, who was commended and made an acting volunteer lieutenant in 1862, for gallant conduct in the action between the U. S. S. *Cumberland* and the Confederate ironclad *Merrimac*. He entered the navy as acting masters' mate August 28, 1861, from Massachusetts.—*Army and Navy Journal*, 16/3.

Secretary Daniels on March 31, announced the following names for new destroyers being built for the navy:

1. The *Belknap*, named in honor of Rear Admiral George Eugene Belknap, U. S. N., who was born in Newport, N. H., January 22, 1832; appointed midshipman October, 1847. He died at Key West, April 7, 1903. His earliest days at sea were with the East India Squadron. During the Civil War he took part in many engagements and in the reinforcement of Fort Pickens, Fla., in 1861, and later commanded a division of boats. He participated in the operations in Charlestown harbor and commanded the ironclad *Canonicus* in attacks on Fort Fisher, N. C., in 1864-1865. He returned to Charlestown, S. C., and fired the last gun against its defences. In 1867-1868 he commanded the *Hartford* and was in command of the expedition against Formosa.

2. The *Badger*, named in honor of Commodore Oscar C. Badger, U. S. N., a native of Connecicut, who was appointed midshipman September 9, 1841, becoming a commodore in 1881. He was retired in 1885 and died in 1899. In the Mexican War he was at the first attack on Alvarado. While attached to the *John Adams* in 1856, he commanded a party sent to attack the Fiji Islands and destroy the village of Vutia. At the opening of the Civil War, he commanded the *Anacostia* and other vessels of the Potomac flotilla in attacks off Cock-Pit Point, Aquia Creek batteries and other localities on the Potomac. He also took part in the siege of Yorktown and defences of Gloucester Point, Va. He commanded the ironclad *Montauk* in the night attack on Sumter in August, 1863, and was flag captain of the squadron. In the night attack on Sumter in September, 1863, while on the flagship *Weehawken* he was severely wounded.

3. The *Walker*, named in honor of Rear Admiral John Grimes Walker, U. S. N., who was born at Hillsborough, N. H., March 20, 1835; appointed acting midshipman in 1850. He died in 1907. During the Civil War he served with distinction on vessels engaged in operations on the Mississippi River and along the Atlantic coast. In 1862, he was at Forts Jackson and St. Philip; was at the capture of New Orleans and in the attack on Vicksburg made the passage between the batteries both ways. He also participated in the attack on Haines Bluff, took part in the Yazoo Pass expedition and capture of Yazoo City, and during the siege of Vicksburg was in command of a naval battery with the 15th Army Corps.

4. The *Crosby*, named in honor of Rear Admiral Pierce Crosby, U. S. N., who was born in Delaware County, Pa., was appointed a midshipman in 1838. In the Mexican War he took part in the attack and capture of Tuxpan and Tobasco. At the outbreak of the Civil War his first duty was to keep open the communication between Annapolis, Md., the Chesapeake Bay and Havre de Grace. Prior to the battle of Big Bethel he volunteered to take a converted canal boat, the *Fannie*, with her boilers held down to the decks by chains and proceeded with her to the attack on

Forts Hatteras and Clarke in order to have a light draft vessel for landing troops. When the sea had swamped the troop boats, Lieutenant Crosby took a ship's heavy launch and continued the landing of 300 men. The following day the squadron closed in from sea and captured a garrison of 700 men, which by Crosby's picket line had been prevented from making a reconnaissance and learning the exact strength of the Federal troops. In 1863, while in command of the *Florida*, he destroyed two blockade runners and in 1864 captured five more blockaders. Admiral Crosby planned and directed the construction of torpedo nets on the Blakely River and superintended the removal of 140 torpedoes, clearing the way so as to allow the squadron to pass safely to Mobile. He was retired in 1883.

5. The *Gamble* is named in honor of Brevet Lieutenant Colonel John M. Gamble, U. S. M. C.; appointed a second lieutenant in the Marine Corps, January 16, 1809. He served during the War of 1812, and while in command of the marine guard of the *Essex* was temporarily placed in charge of three prize vessels. His ship remaining absent, and despairing of her return, he rigged up the prize ship with the intention of quitting the Marquesas. During a fight with mutineers of his command who took one of the prize ships, Gamble was badly wounded in the foot and later in an engagement with the natives, one officer and three of his men were killed and one severely wounded. With but four men on board one of the ships fit for duty Gamble put to sea, and without a chart made his way to the Sandwich Islands in 17 days, only to fall into the hands of the enemy, being later released. Lieutenant Peter Gamble, U. S. N., who shares with Commodore Gamble the honor of having this new destroyer bear his name, was appointed a midshipman January 16, 1809, and lieutenant March 17, 1814. He was on duty at Providence, R. I., until October 9, 1813, when he was transferred to the U. S. S. *Enterprise*, ordered to Lake Champlain in May, 1814, and was killed in action September 11, 1814.

6. The *Twiggs*, named in honor of Major Levi Twiggs, U. S. M. C., who was appointed second lieutenant November 10, 1813. He was killed in battle September 13, 1847, at the storming of the castle of Chapultepec in the Mexican War. Major Twiggs served during the War of 1812, and commanded the marines on the U. S. S. *President* during the engagement between that vessel and the British ships *Majestic*, *Endymion*, *Pomona* and *Tenedos* in January, 1815. He served with the marines co-operating with the army in the campaigns against the Indians, in Georgia and Flordia, in 1836 and 1837. Major Twiggs was in command of the volunteer division of General Scott's Army, which, with a pioneer party of 70, under command of Captain J. G. Reynolds, also of the marines, were placed at the head of the column which stormed the castle of Chapultepec, Major Twiggs being killed while leading the assault.—*Army and Navy Journal*, 4/6.

BATTLESHIPS AND BATTLE-CRUISERS BUILT, BUILDING OR AUTHORIZED.—American battleships are the largest which have yet been laid down by any nation. The largest British battleship of which we have knowledge displaces 27,500 tons; the largest German, 28,448 metric tons, or 28,000 of our tons. The largest Japanese displaces 30,600 tons. These may be compared with our *Arizona* and *Pennsylvania*, 31,400 tons; *Idaho*, *Mississippi*, and *New Mexico*, 32,000 tons; *California* and *Tennessee*, 32,300 tons; *Colorado*, *Maryland*, *Washington*, and *West Virginia*, 32,600 tons. The six new battleships which have been authorized are designed to be 41,500 tons.

Our new battle-cruisers of 35,000 tons and 35 knots will be the fastest in the world, having a speed equal to the latest and fastest destroyers. They will also be the largest in the world, with the sole exception of the four Brutish battle-cruisers of the *Hood* class, which are 41,200 tons.—*Official Bulletin*, 3/4.

A NAVAL HERO OF 1917 HONORED.—In naming the new destroyers recently, the Navy Department very properly selected the name of Ingram for one of these vessels in honor of Osmund K. Ingram, gunner's mate, who gave his life to save the destroyer *Cassin*, which was attacked by a German submarine last winter. This destroyer sighted a submarine and started at full speed toward it. The latter submerged, firing a torpedo at the destroyer. When this missile was about 400 yards away Ingram, seeing that the torpedo would strike near the part of the ship where high explosives were placed, ran back to certain death to throw these charges into the sea, which he did an instant before the torpedo struck. He was killed, but his ship and comrades were saved, showing that our navy to-day has heroes worthy to be named with those of the Revolution, the War of 1812 and the Civil War.—*Marine Journal*, 13/4.

PERSONNEL

STRENGTH OF THE NAVY, MARCH 13, 1918

	Enlisted men	Officers	Total
Regular Navy	192,385	7,798	200,183
Naval Reserve Force	79,069	[1] 10,033	89,102
Marine Corps	38,629	1,389	40,018
National Naval Volunteers	15,000	805	15,805
Coast Guard	4,250	639	4,889
Total	329,333	20,664	349,997

[1] Includes some officers enrolled in various branches of reserve who have not yet been called into active service.—*Official Bulletin*, 9/4.

NAVAL RESERVE FORCE.—At the declaration of war some 10,000 officers and men had been enrolled in the Naval Reserve Force, a large percentage being on duty at the time under training. Enrollments have continued until at the present time there are about 80,000 men and over 10,000 officers.

Reservists are employed in nearly every activity in the navy. Many merchant officers were enrolled and assigned to duty on merchant ships taken over by the navy. Officers were assigned to duty on battleships and destroyers in both deck and engineering departments. On shore, reservists are assigned to patrol duties, and in every bureau, yard, and station under the Navy Department. A large naval reserve flying corps is being built up, its members being on duty abroad as well as in this country.

The naval reserves have been invaluable in assisting the navy to meet the large war-time expansion. There is now a bill before Congress transferring all national naval volunteers to the naval reserve. It is hoped to retain practically all reservists after the war and have a well-trained force available for instant mobilization in case their services are again needed.—*Official Bulletin*, 9/4.

COORDINATING NAVAL TRAINING.—Captain Orton P. Jackson, chief of staff of the Atlantic fleet; Captain Ridley McLean, chief of staff of battleship force No. 1 of the fleet; Captain Carlos B. Brittain, commanding the *Michigan*, and Commander Arthur B. Cook and Lieutenant Commander Edward J. Foy, of the staff of the commander-in-chief of the fleet, are temporarily ashore in connection with improvements in the system of training recruits for service in the fleet. It is desired so to coordinate the work at the training stations and in the fleet as to obtain the best possible results. In this connection the officers from the fleet are visiting the stations at Great Lakes, Ill., Newport, and Hampton Roads, in order that there may be opportunity to impart to the officers there the particular needs and to suggest such changes as may be found advisable. On the other hand, the fleet

officers will have opportunity to learn the problem encountered at the training stations and to adjust the subsequent training aboard ship in accordance therewith. It is intended that advantage shall be taken of the best features of instruction both ashore and afloat. Moreover, it is intended also to attain uniformity in the systems of instruction at the several stations, in order that, as far as possible, recruits sent aboard ships from different stations will represent on the average about the same knowledge and proficiency. For this purpose the commandants of the three stations have been directed to visit and consult with one another. The visits of these officers to the training stations are in accordance with the unceasing efforts of Rear Admiral Leigh C. Palmer, chief of the Bureau of Navigation, who has general charge of recruiting and training, to bring the system to and to maintain it at the highest possible state of efficiency. In January of last year there were about 56,000 men, including reserves, in the naval service. The numbers have been increased until to-day, at the end of the first year of the war, there are over 300,000 enlisted men, including regulars and reserves of all kinds. At the beginning of the war, the training stations could accommodate about 6000 apprentice seamen, and to-day there are barracks at the regular training stations for 50,000 men, and in addition there are men in training in naval districts in barracks and schools provided by the Bureau of Navigation, and also at several schools and colleges that have been requested to assist in the training for special ratings. Since we entered the war, training also was started in the battle fleet, and every vessel, both at home and abroad, now is an active training unit for both officers and enlisted men, in addition to carrying out its main mission of immediate readiness for battle. Trained destroyer, submarine, and patrol-boat men are being brought back from time to time as nucleus crews to man many of the new vessels being put in commission, and the battleships are turning out specially trained crews for new battleships and for all other vessels in the fleet.—*Army and Navy Register*, 6/4.

WILL TRAIN ENGINEERS AT STEVEN'S INSTITUTE.—The Navy Department announced that it had designated the Steven's Institute of Technology, in Hoboken, as headquarters for the new United States steam engineering school for the training of engineer officers for the United States Naval Auxiliary Reserve. This school is the only one devoted to the training of engineer officers for steam engine service, and is a branch of the large training school at Pelham Bay Park. The education of the engineer officers is under the direction of Professor F. L. Pryor, of Steven's Institute, and Dr. Humphreys, the president, who has been designated civilian director.

A five months' course for the training of officers is contemplated, one month to be devoted to military and ship training at Pelham, one month for instruction at Steven's Institute, one month in inspection and repair work at local shipyards, machine shops and boiler shops, one month at sea and one month of subsequent training and examination at Steven's Institute.—*N. Y. Herald*, 3/25/18.

MORE NAVY OFFICERS NEEDED.—The recommendation in the Naval Appropriation Bill, for the fiscal year ending June 30, 1919, that the enlisted personnel of the navy be increased from its present strength of 150,000 to 228,000 "with a proportionate increase in the officers" calls attention once more to the critical need for navy officers, a need growing more imperative as time passes and the fleet and personnel grow beyond all past navy experiences so far as mere numbers are concerned. If Congress approves the increase in personnel recommended 78,000 enlisted men will be added to the navy. On the broad basis of the proportion established by the act of August 29, 1916, this would mean that 3120 commissioned line officers for active duty would have to be added to the officer personnel of the navy. The bill as it stood when reported to the House by Mr. Padgett, chairman

War Council of the Navy Department.
Committee of Public Information.

of the Naval Committee, proposes to make a temporary increase of four captains and seven commanders in the navy and to include the rank of lieutenant commander in the grades for temporary commissions for the period of the emergency. The act of May 22, 1917, "for the temporary increase of the navy," it will be remembered, limits temporary appointments to those not above the rank of lieutenant.

These two provisions will not affect in a general way the following unofficial estimates of the distribution of 3120 new officers if assigned to grades in accordance with the present law. It must be remembered, however, that there are refinements in personnel statistics as worked out in the Navy Department that are not used here. For example, these estimates are figured on a 4 per cent basis, whereas in the last officer personnel estimates issued by the Bureau of Navigation the figure used in working out the proportion of officers to men was "about .4077+." In our estimates we use the paragraph in the act of August 29, 1916, which reads: "Whenever a final fraction occurs in computing the authorized number of army corps, grade or rank in the naval service, the nearest whole number shall be regarded as the authorized number." On this basis the figures that follow are compiled.

The result of the increase in the enlisted personnel of 78,000 men and the consequent increase of 3120 commissioned line officers for active duty would be the following distribution in the various commissioned grades:

Flag officers, 31; captains, 125; commanders, 218; lieutenant commanders, 437; lieutenants, 1014; lieutenants (J. G.) and ensigns, 1295.

These estimates are arrived at, of course, through the proportions of one, four, seven, fourteen, thirty-two and a half, and forty-one and a half, established by the personnel section, act of August 29, 1916. Even in war this may seem like an enormous increase in the officer personnel of the navy, particularly to the older officers who have grown hardened to the idea of long service in grade before promotion. But that the estimates are not exaggerated may be demonstrated by a comparison with the last official estimate of the officer personnel of the navy, made by Rear Admiral Leigh C. Palmer, U. S. N., in his annual report as chief of the Bureau of Navigation for the fiscal year 1916. In that report Admiral Palmer urged an increase in the officer personnel of the navy to meet "the large program provided in the recent bill." In order to fix a reference date, the Bureau of Navigation made its computations as of July 1, 1921, "and to carry out the program of 1921," Admiral Palmer stated, "will require 4487 commissioned line officers on the active list." According to Admiral Palmer's table the distribution of estimated total number of line officers, "if assigned to grades in accordance with the present law," would be as follows:

Flag officers, 45; captains, 179; commanders, 314; lieutenant commanders, 628; lieutenants, 1458; lieutenants (J. G.) and ensigns, 1863.

If this total increase of 4487 is compared with our predicted increase of 3120 it will be seen that our figures for the forthcoming increase and distribution of grades (given that Congress grants the increase) are approximately correct. The growing flotilla of destroyers and the new *Eagle* class of boats, to say nothing of the increase in the number of transports that must be officered by the navy, shows that the above estimate is a theory that is rapidly growing into a condition which must be provided for.—*Army and Navy Journal*, 30/3.

NAVAL APPROPRIATION BILL.—Carrying appropriations amounting to about $1,325,000,000, the Naval Appropriation Bill for the fiscal year ending June 30, 1919, is ready for report by the House Military Committee. Last year's bill, the largest Naval Appropriation Bill in our history, carried $1,625,000,000. The committee in arriving at the total for the coming year made reductions of about $135,000,000 from the estimates. An outstanding and most commendable feature of the bill is the authorization of a resumption

of the building of naval vessels under the three-year building program. This program has not been carried out in the last year owing to a sudden decision of naval experts to abandon the building of some of the larger vessels for that of destroyers needed for attacking submarines, as destroyers are more effective in the submarine zones. It is now reported that enough such vessels have been contracted for or built, therefore the committee recommends that the building program this year shall provide for the following: One battleship; three battle-cruisers; three scout cruisers; one fleet submarine; one ammunition ship; one transport; one destroyer tender; and one hospital ship.

For extension of the navy program, the bill recommends that a blanket appropriation of $100,000,000 be made to the President of the United States to be used for the expeditious building of destroyers and craft deemed necessary in submarine work. It is the idea of the committee to place this money in the hands of the President to be used as a fund which need not be accounted for at present, and under this system it is believed that this country will keep some of the secrets of the navy's building activities from the enemy.

One distinctly new recommendation in the bill is for the construction of a dry dock at Charleston, S. C., to cost $4,000,000. It is also provided that $5,000,000 shall be authorized for the dredging of the channel at Charleston to a depth of 40 feet. The present channel has a depth of 30 feet. Representative Padgett said that the committee in deciding upon this new dry dock wanted to provide adequate facilities for the navy on the Atlantic coast.

Some of the larger items carried in the bill are: Aircraft, $188,000,000; ordnances stores, $24,194,045; manufacture smokeless powder, $2,400,000; increasing facilities to test guns, $1,000,000; new batteries for battleships, $48,309,523; torpedoes, $1,000,000; powder ordnance supplies, $50,000,000; preserving ammunition for vessels, $39,000,000; emergency expenses in navy yards, $4,750,000; outfits for enlisted men, $9,975,000; instruments and supplies, $3,469,000; schools of instruction, $2,655,360; reserve ordnance and supplies, $33,000,000; Bureau of Yards and Docks, $12,000,000; Bureau of Medicine and Surgery, $10,850,000; Bureau of Supplies and Accounts, $213,229,557; provisions, $64,485,300; maintainance, $12,000,000; Bureau of Steam Engineering, $50,000,000.

For public works at the different navy yards and stations, these items are recommended: Brooklyn, $850,000; Philadelphia, $2,400,000; Norfolk, $3,900,000; Mare Island, $1,200,000; Hampton Roads Naval Base, $2,500,000; San Diego Marine Corps Base, $1,500,000.

Personnel.—The bill recommends the increase of the personnel of the navy from 150,000 to 228,000 men and the increase of the marines from 30,000 to 50,000 men with a proportionate increase in the officers in each branch of the service.

It also recommends the creation of the rank of major general in the marine corps and the appointment of three temporary brigadier generals; 12 temporary colonels, and 12 temporary lieutenant colonels in the marine corps. By increasing the personnel in the marine corps there will be a large increase in majors and officers below that rank, based upon the percentage under the existing law.

It is further recommended that the limit of rank for temporary officers appointed in the navy shall be raised so as to include the rank of lieutenant commander. This is necessary, the committee points out, because of the increase in the number of small craft, such as torpedo-boat destroyers, submarine chasers, and destroyers. It is estimated by Representative Padgett that at least 275 new lieutenant commanders will be created by the proposed change in the law. It is further proposed in the bill to make a temporary increase of four captains and seven commanders in the navy.—*Army and Navy Journal*, 16/3.

SECRETARY DANIELS OR ROOSEVELT MAY GO ABROAD.—Either Secretary of the Navy Daniels, or Franklin D. Roosevelt, Assistant Secretary of the Navy, will go to France soon after the return to America of Secretary Baker, according to unofficial report this week. The proposed visit is mainly for consultation with American Navy officers and probably with the naval members of the Supreme War Council at Versailles. The object is to obtain a first-hand view of what is being done by the allied naval forces in order to put Mr. Daniels or Mr. Roosevelt in better position to understand just what has been done, what is being done, and what it is intended to do in the way of naval operations. The responsible officials of the Navy Department have a clear idea of the plan under which the allied naval forces are working, but the opinion prevails that it will be of benefit to obtain the first-hand view.—*Army and Navy Journal*, 23/3.

POLICY

NAVAL COMMANDS ABROAD.—The criticisms recently made of the fact that our destroyers serving in British waters are under the immediate command of an officer of the British Navy, Admiral Sir Lewis Bayly, and not under an American flag officer, have come to the attention of the naval authorities. It is pointed out that the present circumstances surrounding the anti-submarine work of the destroyers are such that it is not practicable to segregate them into a single command. They are a part of a large force under command of Admiral Bayly, and they are outnumbered many times by the British vessels, of various classes, belonging to the force. As it is not practicable to operate them separately as a single command, necessarily they come under the commander of the entire force. Moreover, as there is a large preponderance of British vessels in the force, it would not be logical to place an American naval officer in command of it. Vice Admiral Sims is the commander of all the American naval forces operating in European waters. The vessels of his command are operating in widely separated zones, some directly under American flag officers and some under officers of other navies of the Allies, dependent upon the character of service and the location of the areas in which they are serving. No question has been raised in Admiral Sims' forces as to such details as under whom the vessels may be serving. The one aim of the personnel of the vessels of the various classes has been to render the most efficient service to the allied cause afloat, no matter under whose immediate command the work may be going on.—*Army and Navy Register*, 13/4.

SECRETARY DANIELS PROTESTS AGAINST BILL TRANSFERRING CONTROL OF NAVAL OBSERVATORY.—Secretary Daniels has sent the following letter to Chairman Padgett, of the House Committee on Naval Affairs:

My Dear Mr. Padgett: The Navy Department wishes to express most emphatically its disapproval of H. R. 10954 to change the name of the United States Naval Observatory and to transfer the same to the Smithsonian Institution.

The United States Naval Observatory has grown to its present proportions and position in the astronomical world through the efforts and under the control of the navy and this department believes that its continued efficiency can best be maintained by retaining the present organization.

Any interference in the work of the observatory at this time when all are engaged in war work in addition to regular routine duties interrupts the supply of nautical instruments to the active fleet which may cause disaster.

The work done to keep up the supply of chronometers, sextants, compasses, and other necessary instruments is more or less confidential and it is advisable not to put it in this communication, but it will be furnished in a verbal report if desired.

In addition to its work for the navy, the observatory has the custody of sextants and chronometers purchased by the shipping board.

In March, 1909, the Secretary of the Navy issued an order establishing an astronomical council and stated, "The astronomical work of the Naval Observatory shall be so planned and executed as best to subserve the following purposes and no others, to wit:

"To furnish to the Nautical Almanac Office, as far as may be possible, such observations and such data as may be needed for carrying out the purpose of the law under which the appropriations for that office are made from year to year, which is as follows:

"'For . . . . . preparing for publication the American Ephemeris and Nautical Almanac and improving the tables of the planets, moon, and stars . . . . . '

"The principal work of the observatory shall be in the field of the astronomy of position as distinguished from astrophysical work, and shall be the continued maintenance of observations for absolute positions of the fundamental stars and of stars which are to be made fundamental, and in addition, the independent determination by observations of the sun, of the positions of the stars, moon, and planets with reference to the equator and equinoxes."

The duties of the institution have been so arranged that it is believed entirely satisfactory results have been attained, while the operations move with a common purpose known to the entire staff. The council has held its regular meetings and special meetings for the consideration of matters requiring prompt action.

The Naval Observatory consists of an astronomical department for securing the most accurate positions of the heavenly bodies possible; a nautical department in which are tested and repaired navigational instruments for the navy; an office for the preparation of a nautical almanac by which the ships ascertain their positions at sea; a time service by which the operation of all railroads, ships, and commercial bodies are furnished accurate time daily; a compass office in which the latest form of compasses are examined, as well as a means to show the younger naval officers the latest improvements in them; an inspection department, with inspectors at New York, Boston, and San Francisco, under direct supervision of the observatory. These inspectors are on duty at the factories of manufacturers engaged in the production of navigational material for the navy and United States Shipping Board. There is not another national observatory in any country that has all these departments combined under one head and carried on in one plant. Therefore, when this question of expense arises and comparisons are made, those separate departments should be combined to get the true cost.

A few of the complimentary notices from competent authorities are appended.

Faithfully yours,

JOSEPHUS DANIELS.

HON. L. P. PADGETT,
Chairman Committee on Naval Affairs, House of Representatives, Washington, D. C.

DANIELS GIVES SHIP FIGURES.—Chicago, April 10.—Since April 6, 1917, the day on which war was declared against Germany, there have been added to the United States Navy 1275 vessels aggregating 1,055,116 tons, Secretary of the Navy Daniels declared tonight in an address before the Chamber of Commerce of the United States.

"In addition to the battle-cruisers, dreadnoughts and scout cruisers authorized, some building and others deferred temporarily for the more pressing construction of ships to transport soldiers and munitions and supplies," he said, "we are now building what it technically known as smaller craft from 65 to 1215 tons each, 794 vessels with an aggregate tonnage of 420,217 tons.

"America now has 36,000 men of the navy in European waters on active duty. On May 4, an American destroyer flotilla reached European waters,

followed by navy detachments on May 15 and 24. On June 6, naval aviators were landed in France.

"When the time comes for the discussion of peace terms two things will be demanded: First, that any country that shall employ submarines shall be classed as a pariah among nations; second, that a high tribunal shall be established to which all disputes must be referred, and from which there shall be no appeal. To see that there shall be no appeal from the decision of this international body, America will have a navy large enough to enforce every decision, if necessary.

"Whatever else others may say, that country with the most powerful navy is going to win this war."—*Baltimore Sun*, 11/4.

MERCANTILE MARINE AND SHIP BUILDING.— *To Try Concrete Ships.*— President Wilson has approved the shipping board's suggestion for an appropriation of $50,000,000 to experiment with concrete ships. Chairman Hurley conferred with Chairman Sherley, of the House Appropriation Committee, who has promised to introduce the appropriation bill immediately and press its passage. No opposition to the measure is expected in either House. It is planned to make $15,000,000 available at once.

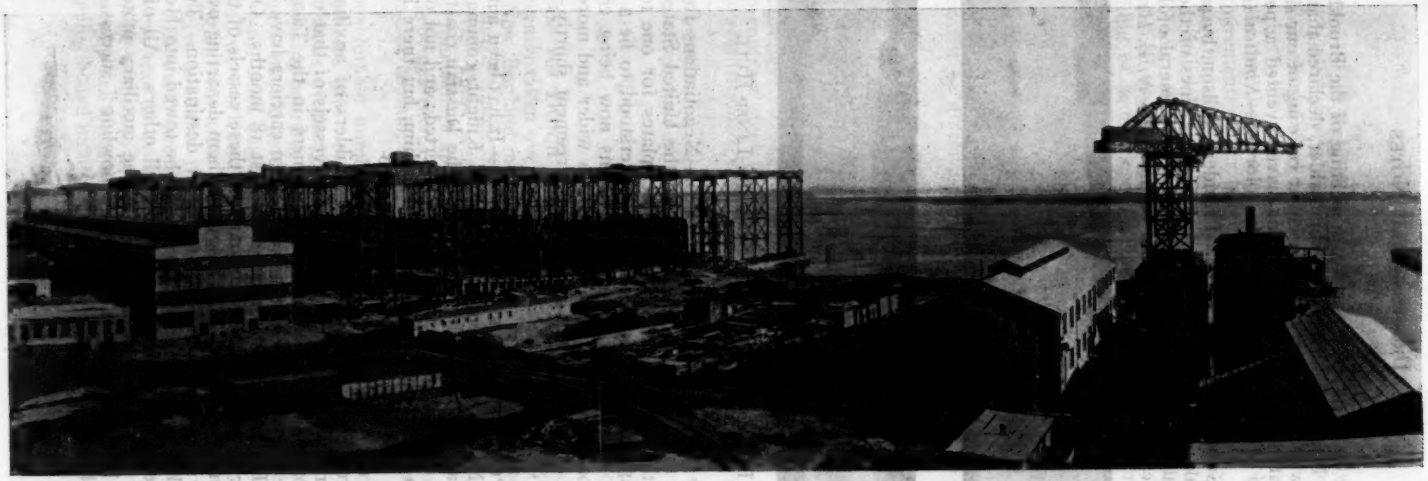
The President is said to be keenly interested in the new type of construction. He has talked several times with Mr. Hurley, Senator McCumber, who is urging the appropriation in the Senate, and other officials who believe concrete ships will prove an important link in the "bridge across the Atlantic." Chairman Hurley frankly has said concrete construction is an experiment, but that the shipping board does not feel warranted to pass over any possibility of turning out ships quickly because the experiment may not prove a success.

Everything that can be done to ascertain the possibility of using concrete ships commercially has been done by the shipping board. R. J. Wig, an expert in concrete construction, recently completed an examination of piers, bridges, etc., to determine the effect of sea water on concrete. Mr. Wig also observed the launching of the concrete ship *Faith* in California, and made a report officially described as "very enthusiastic" of the behavior of the vessel. Tests of concrete construction have been made at the Bureau of Standards under the personal direction of Secretary Redfield.

Conclusions from all these experiments have convinced many experts that concrete ships will be a success. They regard such ships as essentially "covered bridges" capable of standing all the strain and the stress which concrete bridges have undergone without damage. Shock is the one big undetermined factor and they believe that the resistance of concrete ships to shock can be determined only by actual experiment with the vessels themselves. The chemical action of sea water on concrete also has not fully been determined yet, but from observations already made experts do not believe it will cause speedy disintegration.—*Baltimore Sun*, 14/4.

CAMOUFLAGE OF AMERICAN MERCHANT VESSELS.—Camouflage of all American merchant vessels of the shipping board is announced in a statement that a special department has been organized. The work will be under direction of a district camoufleur in every construction district.—*Baltimore Sun*, 11/4.

DEVICE FOR PROTECTION AGAINST SUBMARINES FOR MERCHANT SHIPS PERFECTED.—The United States Shipping Board has perfected a new device for the protection of merchant shipping against torpedo attack, which is to be applied at once to every American ship, plying in the submarine area. The device consists of the installation of additional temporary bulkheads so the number of water-tight compartments in each ship will be doubled.—*N. Y. Herald*, 13/4.



VIEW OF SHIPYARD SHOWING FABRICATING SHOPS, SHIPWAYS IN CENTER, FITTING OUT BERTH AT THE RIGHT.

CAMOUFLAGE OF SHIPS USELESS.—At a meeting of the Brooklyn Chamber of Commerce, Mr. Lewis Nixon, the shipbuilder, declared that the camouflage of ships was a useless art. The peculiar coloring of our ships is of no avail, he declared, because the Germans have invented a periscope that reveals the ship in outline regardless of the coloring.—*Nautical Gazette*, 11/4.

COASTWISE SHIPPING TAKEN OVER.—President Wilson, by proclamation, directed the taking over of all coastwise shipping lines of the country at noon next Saturday and empowered the Director General of Railroads to control and operate them for the period of the war.—*N. Y. Herald*, 12/4.

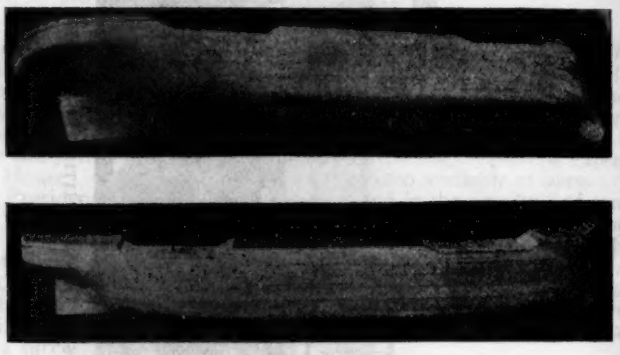


FIG. 6.—MODEL OF THE STRAIGHT-LINED HULL.

TRANSFER OF JAPANESE TONNAGE TO U. S.—Negotiations for the transfer of 150,000 tons of Japanese shipping to the United States have been completed on the basis of two tons of steel plates for one ton of deadweight ship capacity. This agreement is understood to be a preliminary one, to bridge over the period of negotiations now being conducted by American Ambassador Morris, at Tokio, for a wider and more permanent understanding. Both nations will sign the agreement shortly.—*Army and Navy Journal*, 30/3.

DENIAL OF PURCHASE OF RUSSIAN SHIPPING.—It has been authoritatively denied at the Navy Department that Admiral Knight, commander of the Asiatic fleet, had purchased any shipping on the Russian coast. He could not have acted without instructions, it was asserted; and not only have no instructions on such a subject been issued to him, but there has been no communication upon it.—*Nautical Gazette*, 23/3.

PACIFIC MOTOR SHIPS UNSATISFACTORY.—Builders of auxiliary powered schooners are not finding as ready a sale for vessels of that class as they did several months ago, according to a statement in the Tacoma, Wash., *Ledger*. Some thirty-odd of this type of cargo carriers have been turned out by North Pacific shipyards during the past 18 months. One explanation is the poor showing made by so many of these vessels of the auxiliary type on their maiden voyage. Not a few of them departing overseas have had to tow or limp into some port not their destination. Two of them are lying crippled at Panama, another had to be towed into Honolulu, and mishaps of one kind or another overtook still others. All of which has forced marine men to the conclusion that the auxiliary motor schooner with her semi-Diesel engines is not yet a "howling" success, neither has it proved a failure.

The comment of the British statesman some days ago to the effect that American institutions were still on trial, it is contended, applies aptly enough to the semi-Diesel engine. The criticisms of the auxiliary powered vessels is that with her power failing in so many instances to come up to expectations that the vessel in such cases almost invariably fails to measure up to requirements under her canvas.

However, impartial marine men of judgment believe the auxiliary powered vessel will yet demonstrate her worth. But they assert that she will do so only after some improvement of the present type of semi-Diesel engine manned or operated by an engineer apprenticed and specialized in the handling of semi-Diesel engines. This the engineers resent, claiming it to be the fault of the engine, not their own.

Local shipping men are inclined to believe it is the old story of the engine room men depending on the sails to move the ships while the sailors believe the engines ought to carry the burden. And because there are few men who are experts with sailing ships that are available for power schooners now, while Diesel engineers are almost a minus quantity, the result is that inferior men are operating the schooners, and their best results cannot be gotten out of them.—*Nautical Gazette*, 28/3.

SHIP DELIVERIES AND LAUNCHINGS IN MARCH.—The United States Shipping Board has issued the following summary of deliveries and launchings for the month of March, 1918:

	Dead weight tonnage
Deliveries:	
21 vessels	166,700
Launchings:	
6 contract steel vessels	51,650
21 requisitioned vessels	149,636
27 vessels	201,286
9 others (wood and composite)	31,500
Grand total	232,786

Official Bulletin, 2/4.

OFFICERS FOR DUTCH SHIPS.—American officers for five of the Dutch ships recently taken over by the government, who were "signed on" from among New England merchant marine sailormen by the recruiting service of the United States Shipping Board, left to-day for New York to join the vessels. There were 36 in the party. They are to be joined at New York by four others appointed from Baltimore.

This provides each of the five ships with a full complement of officers, consisting of captain, chief engineer, three mates, and three assistant engineers.

A considerable number of the Americans thus chosen to replace the Dutch officers who were on those ships, with 73 others by the government, are graduates of the free navigation and engineering schools maintained by the shipping board at Rockland, Portland, Gloucester, and Boston, to assist experienced men in getting their first licenses. The others chosen, including the captains, chief engineers, and first mates, have held licenses for some years, and were selected from lists recently compiled by the shipping board recruiting service after a census of the country's licensed deck and engineer officers available for immediate service in the new merchant marine.

Henry Howard, director for the shipping board, announced to-day that his department was at work assembling officers for several other Dutch ships and that he wished to hear from all sailors and engineers in all parts of the country who are licensed as officers, or who are qualified to enter one of the shipping board navigation or engineering schools to study for a license.

"The demand for American merchant marine officers is now brisk," he said, "and the man qualified to hold a license as deck officer or engineer who does not come forward is not doing his duty by his country."—*N. Y. Times*, 3/31/18.

PERSONNEL

It is figured that there will be launched this year in the United States an aggregate of 3,200,000 gross tons, or 5,000,000 tons dead-weight capacity of shipping and that the first thousand ships will call for 8000 officers—a captain and three mates, an engineer and three assistant engineers, or eight officers to a ship. The Navy Department can be relied upon to supply one-half of these officers, but to get the balance the Atlantic and the Pacific coast and the Gulf and the Great Lakes have been districted to gather in engineers and seafaring men to take short courses at technical schools that they may be able to officer these ships. Six hundred men are now in training and two training ships, the *Governor Dingley* and the *Calvin Austin*, are to be used for the practical training of those whose education does not fit them for officers of high rating. One of the difficulties met with is that the Navy Department has been enlisting as ensigns many of the men graduated for this service.—*Shipping*, 23/3.

THREE HUNDRED AND NINETY SHIPS CARRY MEN AND SUPPLIES.—By restricting imports, withdrawing ships from the less necessary trade channels, and obtaining neutral tonnage by agreement, the United States has been able to put 2,762,605 tons of shipping into the trans-atlantic service to carry men and munitions to France. Of this 2,365,344 tons are under American registry, the remainder being ships operated by private interests and neutral tonnage. There are in all 390 ships, of which 322 are of American registry.

It was said that the shipping situation, from the view-point of the United States, was more favorable than at any time since the nation entered the war. The tonnage now in service includes only a small part of the 500,000 or more tons of Dutch ships which were requisitioned. It is believed that the 3,000,000-ton mark will be reached when all of the Dutch shipping available for oversea service is in use.

To this tonnage will be added gradually the 250,000 tons which Japan has promised during the summer months, and the ships now under construction in this country which are nearing completion. Later, Japan will add another 200,000 tons or more which is to be built.

All of the shipping now available to the United States is being routed and loaded by the Interallied Ship Control Committee, of which P. A. S. Franklin is chairman. The increased efficiency which has been obtained by this committee during the last 30 days, it is said, has added 20 per cent to the service given by the fleet or the equivalent of 400,000 in figures of tonnage, over the February service.

Reports received from the shipyards lately have not been unfavorable, and it is believed that the April deliveries will set a new record, despite the delays in supplies and transportation troubles.

Apparently there is a general feeling of optimism over the situation and a conviction that the fleet available for trans-atlantic service will be gradually increased despite the best efforts of the German submarines. Barring some disaster in the shipyards it seems positive that the point has been reached where Germany cannot hope to cut down the total amount of tonnage, which the United States is now able to use in transit to Europe and must instead accept the verdict that the fleet will steadily grow in proportions.

The Ship Control Committee also has the power to route tonnage under the control of Great Britain and the other allied nations the tonnage of which is not given in the figures quoted above. Every energy is being put forward to add to the efficiency of this tonnage as well as by providing

better facilities for loading and unloading and a system of routing which will put an end to delays which have proved serious in the past.—*N. Y. Times*, 10/4.

MANNING THE AUXILIARY MERCHANT FLEET.—In that classic hearing—for it has become a classic—before a subcommittee of the House Naval Committee, certain representatives of the International Seamen's Union of America aired various theories on manning with naval crews the vessels transporting troops and carrying supplies to our Allies and our forces in Europe. These views would be diverting if, at the present crisis, they were not pathetic. Various imperfectly informed associates of the United States Shipping Board also recited their lessons, but as these are concerned mainly with other maritime interests they must, for the moment be passed over. Unfortunately the subcommittee's report is too long for press reproduction, but it may be commended *in extenso* to the intelligent study of those interested in discovering the methods by which the misguided International Seamen's Union of America is ruled.

In many instances flat charges were laid against the excessive manning by naval crews, as compared with what the simpler practice of the commercial marine needed. Good care was taken in this fearsome indictment to put aside all consideration of the insistencies of war and the perils of the danger zone. The subcommittee was, however, happy in its first-hand knowledge, in its acquaintance with the game and in its recognition of the subtleties of the protagonists.

The positive assertions of the labor leaders were therefore opposed by the equally positive and informed contradiction of the inquirers, and the nimble pea under the selected thimble was over and over called right at the first throw.

Taken by and large, it all ends in this, everything governmental afloat must be under naval control for the period of the war. Whenever and wherever a special effort must be exerted to train men for a commercial marine that is to be continuous, this always under naval administration, may be directed by deep water merchant masters and not by amateur yachtsmen, let us say, of the 30-foot class. The shipping board has its own fine work to do and to this it must devote all its possibilities, giving up the manning of its ships, of which it knows nothing, to a navy that so far seems to have proven its efficiency.—*N. Y. Herald*, 4/2.

SHIPPING BOARD SQUADRON TO TRAIN BOYS FOR SEAMEN.—The United States Shipping Board recruiting service at Boston, issues the following:

Unique in war equipment is a national squadron of training ships now being formed by the United States Shipping Board, on which young Americans between the ages of 17 and 27, may learn the trade of seagoing preparatory to service in the new merchant marine.

Famous Old Liner at Head.—Heading the squadron is the extransport *Meade*, well known to American sailors as the former Atlantic liner *City of Berlin*. Built in Scotland in 1874 for the avowed purpose of lowering the trans-atlantic speed record, the *City of Berlin* was not only the finest but the fastest ocean greyhound of her day. She captured the record both east and west between New York and Queenstown in 1875, her eastbound time being 7 days, 15 hours, and 48 minutes.

Served in Spanish War.—Taken by the United States Government in 1898 and renamed the *Meade*, the former record holder served as a transport in the Spanish War and for a dozen years thereafter.

In spite of her 44 years, the *Meade* is still a sound and handsome vessel. Her model is finely proportioned. Her bow, long and sharp, and adorned with an old-style figurehead in the form of a woman, is of a sort to delight the eye of a sailor.

The *Meade* is 523 feet long and 44 feet wide, and registers 5641 tons gross. She has a capacity for 1000 apprentices. The ship is now being over-

hauled at Newport News, Va., where she has been laid up for several years.

Boston Home Port.—She will be taken in the early spring to Boston, the home port of the shipping board's training squadron. Here are stationed two other vessels of the squadron, the *Calvin Austin* and *Governor Dingley*, sister ships, 300 feet long and 60 feet wide, formerly in passenger service on the New England coast. Each of these vessels already has on board a large complement of apprentices.

A fourth ship for the squadron is now being fitted out at New York, and will join the others in the early spring.

Training For 2700.—When all four ships are in commission, the training squadron will have capacity for more than 2700 apprentices, who will be drilled as seamen, firemen, oilers, water tenders, coal passers, cooks, and stewards.

Intensive training, including life-boat and fire drill, from a month to two months on the training ship, is to be followed by actual service at sea on board new cargo vessels of the merchant marine.

The training squadron is under the direction of the shipping board's recruiting service, Henry Howard director, national headquarters of which are in the Boston custom-house.—*Official Bulletin*, 4/4.

MARINES WITH DOMINICAN GUARD.—Marines on duty with the guardia nacional of the Dominican Republic probably will serve some time with that organization before they receive additional pay from the Dominican Government for the service. Although a law has been enacted empowering officers and enlisted men of the navy and marine corps to serve under the government of the Dominican Republic, the members of the navy and marine corps serving with the guard, which already is being organized by the marines, will not receive other than their service compensation until after the consummation of a treaty between this country and Dominica in which provision is made therefor. Thus the pay status is dependent not only on this condition but also on the policy that may be pursued by the Navy Department. The commandant of the marine corps believes that the compensation from the Dominican Government should be on the same basis as that pertaining to those serving with the Haitian Gendarmerie. Rear Admiral Harry S. Knapp, the naval commander at Santo Domingo City, has recommended a smaller scale, and it is understood that Secretary Daniels is disinclined to allow any additional pay at all. It may be stated in this connection that it was about a year after the passage of the act of Congress relating to organization of the Haitian Gendarmerie before the marines serving with that force were allowed additional pay from the Haitian Government.—*A. and N. Register*, 13/4.

DEVIL DOGS, NEW HUN NAME FOR AMERICAN MARINES.—That time honored nickname borne by the United States marines for generations, "leather necks," is no more!

At least the Germans have abandoned it, according to reports from France.

In its place the Teutons have handed the sea sailors one with far more meaning. They call the American scrappers "teufel hunden," which, in English, means "devil dogs."

"Gee, those guys rank us with the 'Ladies from Hell,'" declared a grizzled old marine sergeant, swelling with pride when he heard the new title.—*N. Y. Herald*, 15/4.

MARINE CORPS.—Since the opening of the present war the marine corps has grown from a total of 13,266 enlisted men and 426 officers to a present strength of 1389 officers and 38,629 enlisted men.

The increase in enlisted men has been by voluntary enlistments, in one instance a college battalion enlisting as a whole. The enlisted personnel rep-

resents all classes of the community, college and business men, professional men, athletes, mechanics, laborers, and in one instance an ex-congressman, who, though slightly over the usual age, has attained the rank of second lieutenant through his devotion to duty and application.

The recruit depots at Port Royal, S. C., and Mare Island, Cal., have proven equal to the demands made upon them and the preliminary training of this mass of recruits has been accomplished. No detail of the preliminary training of a soldier has been neglected, and on the transfer of these new men to the concentration camp at Quantico, Va., the majority have worn the insignia of expert rifleman, sharpshooter, or marksman.

Upon the completion of the recruit training the majority of the men have been transferred to the camp at Quantico to complete their course of intensive training in the new organizations formed at that post for service overseas. Five regiments of infantry, with their attendant replacement units, have been organized in addition to a brigade of artillery with attendant technical units, since the creation of this new post in June, 1917.

In addition to the brigade of marines in France, it is necessary to maintain forces of marines in Santo Domingo, Haiti, the Virgin Islands, Cuba, China, the Philippines, Guam, Porto Rico, Honolulu, and, to further illustrate the broad character of the foreign service of the marines, a small detachment in London. The fleet absorbs a considerable percentage of the present force, and it has been found necessary to augment the garrisons of the navy yards, naval ammunition depots, radio stations, and other posts in this country.—*Official Bulletin*, 9/4.

U. S. ARMY IN FRANCE.—The present location of U. S. A. forces in France which may have been moved since the commencement of the present offensive, has not been disclosed. It is reported that General Foch will not sacrifice inexperienced troops.

The American forces in the Toul sector have held their ground against frequent attacks, small detachments in the Cambrai sector participated with the British forces in their retirement.

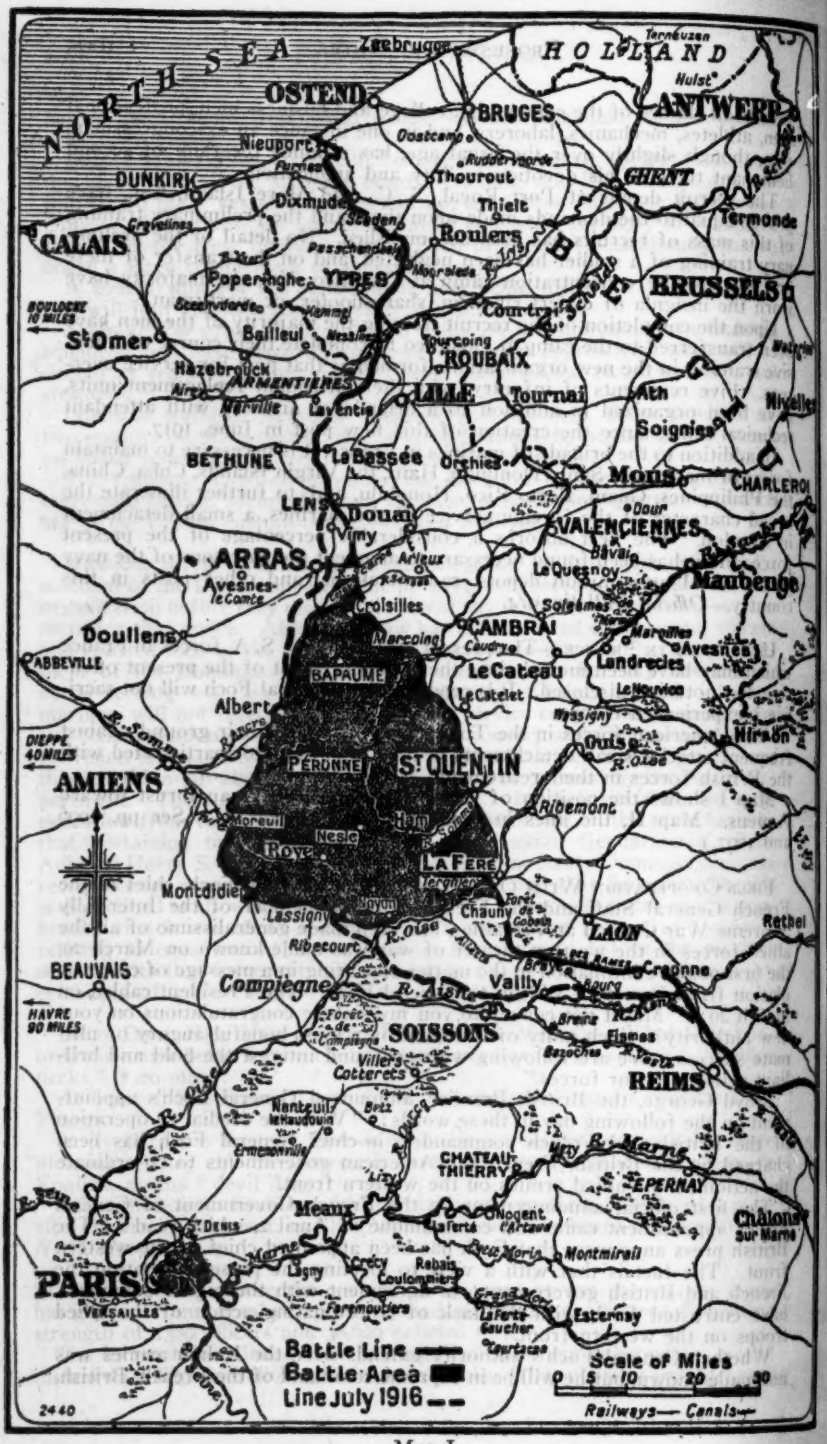
Map I shows the position of the lines after the German thrust toward Amiens. Map II, the lines in Flanders up to March 18. (See pp. 1096 and 1097.)

FIELD CO-OPERATION WITH OUR ALLIES.—That General Foch, chief of the French General Staff and the French Military member of the Inter-Ally Supreme War Council at Versailles, has been made generalissimo of all the allied forces in the western theater of war was made known on March 29, the first positive intimation in the matter appearing in a message of congratulation from President Wilson to General Foch. The President cabled on March 29: "May I not convey to you my sincere congratulations on your new authority? Such unity of command is a most hopeful augury of ultimate success. We are following with profound interest the bold and brilliant action of your forces."

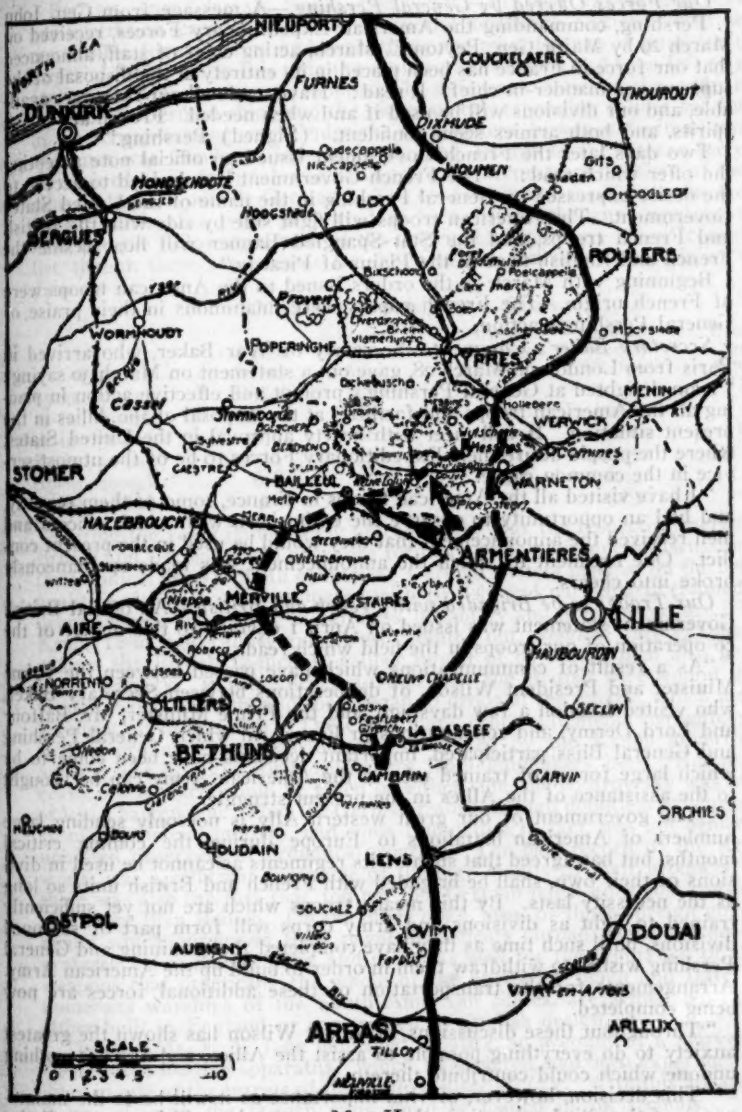
Lloyd George, the British Premier, announced General Foch's appointment on the following day in these words: "With the cordial co-operation of the British and French commanders-in-chief General Foch has been charged by the British, French and American governments to co-ordinate the action of the allied armies on the western front."

The first official announcement by the French Government of General Foch's appointment came in a communiqué of April 2, which read: "The British press announces that Foch has been appointed chief of the western front. The fact is that with a view to meeting the present situation the French and British governments, in agreement with the higher command, have entrusted Foch with the task of co-ordinating action of the allied troops on the western front."

Whether General Foch's authority extends over the Italian armies was not made known, but he will be in supreme command of the French, British,


NORTH SEA
HOLLAND
BELGIUM
Zeebrugge
OSTEND
BRUGES
ANTWERP
Nieuport
DUNKIRK
Thourout
GHENT
Dixmude
Thielt
Termonde
CALAIS
Roulers
YPRES
BRUSSELS
St Omer
Bailleul
Courtrai
ROUBAIX
Hazebrouck
ARMENTIERES
LILLE
Tournai
Ath
Soignies
BÉTHUNE
La Bassée
Orchies
Mons
CHARLEROI
LENS
Douai
Vimy
VALENCIENNES
ARRAS
Avesnes-le-Comte
Le Quesnoy
Maubeuge
Croisilles
CAMBRAI
Doullens
Marcoing
Avesnes
ABBEVILLE
BAPAUME
Le Cateau
Landrecies
Albert
Le Catelet
DIEPPE 40 MILES
R. Somme
PÉRONNE
St QUENTIN
Guise
AMIENS
Ribemont
Moreuil
Roye
Nesle
LA FERE
Montdidier
Chauny
LAON
Rethel
Lassigny
Ribecourt
R. Oise
R. Aisne
BEAUVAIS
Compiègne
Vailly
Craonne
HAVRE 90 MILES
SOISSONS
Fismes
REIMS
Villers Cotterets
Nanteuil le Haudouin
CHATEAU THIERRY
R. Marne
EPERNAY
Meaux
Nogent l'Artaud
Châlons sur Marne
PARIS
Montmirail
Lagny
Crécy
Rebais
Coulommiers
VERSAILLES
Farmoutiers
La Ferté Gaucher
Esternay
Battle Line
Battle Area
Line July 1916
Scale of Miles
0 5 10 20 30
Railways — Canals
2440

MAP I.


NIEUPORT
NORTH SEA
DUNKIRK
FURNES
COUCKELAERE
THOUROUT
DIXMUDE
HONDSCHOOTE
LOO
HOUTHEM
OOSTDUINKERKE
BERGUES
ROULERS
WORMHOUDT
BROWNINGE
POPERINGHE
YPRES
COMINES
WERVICK
MENIN
CASSEL
STEENVOORDE
STOMER
BAILLEUL
WARNETON
HAZEBROUCK
ARMENTIERES
LILLE
MERVILLE
ESTAIRES
AIRE
HAUBOURDIN
NORRENTO
ONEUX CHAPELLE
SECLIN
LILLERS
LA BASSEE
BETHUNE
CAMBRIN
CARVIN
ORCHIES
HOUDAIN
LENS
ST POL
SOUCHEZ
OVIMY
DOUAI
AUBIGNY
VITRY-EN-ARTOIS
ARRAS
ARLEUX
TILLOY
SCALE
0 1 2 3 4 5 10

MAP II.

American, Belgian and Portuguese armed forces on the western front. It is assumed that Italy's forces also will be subject to his orders.

Our Forces Offered by General Pershing.—A message from Gen. John J. Pershing, commanding the American Expeditionary Forces, received on March 29 by Major Gen. Peyton C. March, acting chief of staff, announced that our force in France has been placed in its entirety at the disposal of the supreme commander-in-chief. It read: "Have made all our resources available, and our divisions will be used if and when needed. French are in fine spirits, and both armies seem confident. (Signed) Pershing."

Two days later the French Government issued an official note accepting the offer which read: "The French Government has decided to accede to the desire expressed by General Pershing in the name of the United States Government. The American troops will fight side by side with the British and French troops, and the Star-Spangled Banner will float beside the French and English flags in the Plains of Picardy."

Beginning with March 30 the orders issued to the American troops were of French origin. The French papers were unanimous in their praise of General Pershing's action.

Secretary Baker's Comment.—Secretary of War Baker, who arrived in Paris from London on March 28, gave out a statement on March 30 saying: "I am delighted at General Pershing's prompt and effective action in placing all the American troops and facilities at the disposal of the Allies in the present situation. It will meet with hearty approval in the United States, where the people desire their Expeditionary Forces to be of the utmost service in the common cause.

"I have visited all the American troops in France, some of them recently, and had an opportunity to observe the enthusiasm with which officers and men received the announcement that they would be used in the present conflict. One regiment to which the announcement was made spontaneously broke into cheers."

Our Troops to be Brigaded with French and British.—An official British Government statement was issued on April 1 devoted to this matter of the co-operation of our troops in the field which reads:

"As a result of communications which have passed between the Prime Minister and President Wilson, of deliberations between Secretary Baker, who visited London a few days ago, and the Prime Minister, Mr. Balfour and Lord Dermy, and consultations in France, in which General Pershing and General Bliss participated, important decisions have been come to by which large forces of trained men in the American Army can be brought to the assistance of the Allies in the present struggle.

"The government of our great western Ally is not only sending large numbers of American battalions to Europe during the coming critical months, but has agreed that such of its regiments as cannot be used in divisions of their own, shall be brigaded with French and British units so long as the necessity lasts. By this means troops which are not yet sufficiently trained to fight as divisions and army corps will form part of seasoned divisions, until such time as they have completed their training and General Pershing wishes to withdraw them in order to build up the American Army. Arrangements for the transportation of these additional forces are now being completed.

"Throughout these discussions President Wilson has shown the greatest anxiety to do everything possible to assist the Allies, and has left nothing undone which could contribute thereto.

"This decision, however, of vital importance as it will be to the maintenance of the allied strength in the next few months, will in no way diminish the need for those further measures for raising fresh troops at home, to which reference already has been made. It is announced at once because the Prime Minister feels that the singleness of purpose with which the United States have made this immediate, and, indeed, indispensable contribution toward the triumph of the allied cause should be clearly recognized by the British people."—*A. and N. Journal,* 6/4.

ORDNANCE AND GUNNERY

BRITISH AND GERMAN NAVAL ORDNANCE.—In 1890 the German naval administration created at Essen a special ordnance section which was responsible for designing and supervising the manufacture of guns for the Imperial fleet. Up to this time the design of such guns had been left to the factory, and there was no appreciable difference between the ordnance mounted in German ships and the pieces of corresponding caliber set forth in the Krupp catalogues. Under the new system, however, German naval ordnance was developed independently, and, thanks to the intense secrecy maintained, it is doubtful whether any really accurate particulars of these guns are known outside Germany. The 1914 edition of the *Taschenbuch der Kriegsflotten* gave what purported to be a list of the guns used by the fleet, and the following details of the principal weapons are taken from this list, though there are reasons for doubting the accuracy of certain of the data:—

MODERN GERMAN NAVAL GUNS

Gun	Weight (tons)	Weight of shell (lb.)	Muzzle velocity (ft.-sec.)	Muzzle energy (ft.-tons)	Rounds per minute
15-in., 45-cal.	82½	1675	2920	99,000	(?)
12-in., 50-cal.	47	851	3084	56,660	1
11-in., 50-cal.	36½	661	3084	43,600	1½
8.2-in., 50-cal.	15¼	275	3084	18,170	3
6.7-in., 40-cal.	6.8	154	2756	6,452	5
5.9-in., 45-cal.	4.9	101½	2920	5,856	7

During the years immediately preceding the war the respective merits of British and German naval ordnance formed a topic of frequent discussion in the technical press of both countries. German writers insisted on the better qualities of Krupp guns compared with British, and particularly claimed an overwhelming superiority in lightness, durability and precision of fire. The Krupp 12-inch 50-caliber gun, it was pointed out, weighed only 47 tons, as against the British 12-inch 50-caliber model of 69 tons, which also had a lower velocity. It was alleged further that the British wire-wound guns lacked girder strength, and soon began to droop at the muzzle, which meant a falling off in accuracy. These and many other statements derogatory to British ordnance were assiduously circulated by the Krupp advertising agency, and brought forth rejoinders from gunmakers here. But as no really official facts could be given on either side, the controversy was more or less a barren one. That the German claims, though doubtless exaggerated from commercial motives, had some foundation in fact, was not denied by unbiased observers of ordnance progress. The past record of the Krupp works was a sufficient guarantee of the high quality of their products, and there was also the fact that, ton per ton, German naval guns cost considerably more than British. On the other hand, most of those foreign governments which purchased their naval armaments abroad showed a decided preference for British guns, and it speaks well for the reputation of these weapons that practically the whole of the navies of Japan and Italy, and numerous warships of the South American States, are armed with guns either built in England or constructed to English design.

The late Mr. F. T. Jane published, in 1912, an account of a marvellous "pneumatic loading apparatus," which, he declared, had been experimentally fitted in one of the turrets of the battle-cruiser *Moltke*. With this apparatus, it was claimed, the 11-inch guns could be loaded in six seconds. "The charges for both guns, in brass loading cases, come up in the middle between the two guns, the projectiles away to the right and left respectively. One movement puts in the projectile, a second the cartridge. What the Germans do with the cartridges after firing is not at all clear.... They only have it in one turret of one ship as yet, but people who compile laborious statistics

about relative broadsides may as well take note now as later on." Considering the weights involved, loading an 11-inch gun in six seconds would have been a remarkable performance, but unfortunately nothing further was heard of this wonderful invention. As all German guns up to the 15-inch use metal cartridge cases, the problem of disposing of the spent cases, which are very bulky objects, was solved in the earlier ships by sending them below in the returning hoist. In later vessels there are apertures in the rear turret wall, and it is supposed that the empty cases are got rid of in this way, just as the Japanese gunners at the *Yalu* pitched the spent cases from the quick-firers down the nearest hatchway.

The revival of interest in gunnery which was the outstanding feature of British naval policy at the beginning of this century had its counterpart in the German fleet. Prior to the dreadnought era and the coming into fashion of long-range practice, German tactics were limited in the main to extremely rapid fire at moderate ranges. Between 1896 and 1901 ten German battleships were launched, none of which carried a heavier gun than the 9.4-inch. They were armed with four of these weapons, in addition to eighteen 5.9-inch quick-firers. It was claimed for them that, in spite of their light main battery, they could deliver in a given time a greater weight of metal than any contemporary British battleship armed with four 12-inch and twelve 6-inch guns. The German theory that volume was of more importance than weight had, and still has, many adherents in this country. It was especially convincing when the prospective targets were, for the most part, ships with a large area of unprotected hull. In 1902 the nameship of the *Braunschweig* class was launched. In her the main battery was increased to four 11-inch and the auxiliary armament to fourteen 6.7 inch. As all these weapons were credited with a high rate of fire the ships were formidable enough on paper, though they were considered abroad to be over-gunned for their displacement. When the all-big-gun epoch set in, Germany kept to the 11-inch gun for her first quartet of ships, and then adopted the 12-inch for the next three groups—13 ships in all—though other nations were mounting larger weapons. Even in Germany protests were raised against the retention of this gun at a time when British ships with 13.5-inch armaments were passing into commission. The semi-official explanations published on this point may be summarized as follows: " The decision to continue arming German capital ships with guns of moderate caliber, *i. e.*, 12-inch, is the result of a careful survey of all the circumstances. Our industry is perfectly competent to produce guns quite as large and powerful as any foreign weapons if the necessity arose; but in the opinion of our principal naval officers it has not yet arisen. Most of our dreadnoughts are armed with the 12-inch 50-caliber gun, weighing 47 tons. This gun, compared with the 13.5-inch 45-caliber piece mounted in British ships, which weighs 76 to 80 tons, is equal in penetrative power up to all practicable ranges, and its shell is considered quite heavy enough for attacking any armored vessel now afloat. Ten of our 12-inch guns weigh 470 tons, whereas ten of the British guns represent a weight of 760 to 800 tons. There is also a proportionate saving in the weight of our mountings. We are thus enabled to use the extra displacement at our disposal by giving the ships better armor protection and by mounting a powerful battery of 6-inch guns, which most of the British ships lack. The best evidence that British guns are not equal in quality to ours lies in the fact that within six years the British authorities have introduced no fewer than five different types of gun into their fleet, viz., 12-inch 45-caliber, 12-inch 50-caliber, 13.5-inch 45-caliber (1250-pound shell), 13.5 inch 45-caliber (1400-pound shell), and 15-inch 45-caliber. We, on the other hand, preferred to develop a single type of gun to the utmost limit of its power, and, avoiding the craze for mere size, succeeded in making our 12-inch model as formidable in all needful respects as foreign guns of 70 per cent more weight." Nevertheless, even Germany found it desirable, in 1913, to employ a heavier gun, and consequently her battleships of that year's program were armed with 15-inch weapons.

From 1904, gunnery training in the German fleet was very intensive and practical in character. In that year the target practice system was revolutionized; from a distance of 4000 to 5000 yards, the range was rapidly extended until, a few years later, ships were scoring good results at 8000 to 10,000 yards. The following results were given in the *Navy League Annual* of 1909: "To-day we have the *Deutschland* firing 17 rounds and scoring 15 hits with her 11-inch guns at 6000 yards when steaming at 15 knots (April, 1909); the *Braunschweig's* fore turret weapons making 11 hits in 12 rounds at 6500 yards, steaming at 16 knots (June, 1909); the *Gneisenau* shattering all previous German records with the 5.9-inch quick-firer by her performance off Swinemünde last August—40 rounds and 33 hits at 4500 yards. It was during the same run that a gunner of the *Gneisenau* fired 12 shots and scored 12 hits in 62 seconds with a 5.9-inch gun, not of the latest model." Three years before the war a German director apparatus was subjected to exhaustive trials by the *Elsass* and *Blücher* during a special cruise to the Faroes. Certain facts which leaked out about the results of this firing were submitted, after verification, to a British naval officer of high rank, who was inclined to be skeptical.

Besides increasing the individual power of the gun by enlarging the powder chamber, perfecting rapid loading gear, and paying great attention to the optical instruments for sighting and control at maximum ranges, the Germans were unremitting in their efforts to improve the quality of naval shell. It is to be feared that official circles here were not fully alive to the progress which had been effected in this very important respect. In 1912 Sir George Greenhill, the eminent ordnance expert, declared the Germans to be so far ahead that they should shortly have in use a 6-caliber shell. The "portmanteaux," or very long high-explosive projectiles, used by the Japanese in their war with Russia, were notoriously erratic in flight. This was due, not to erosion, but to the unsuitability of the rifling, the guns they were discharged from having been designed for short shell; and consequently the "portmanteaux" did not have sufficient rotation about the longitudinal axis to steady them. After long experiment, conducted at great expense, German artillerists finally succeeded in throwing long projectiles to extreme range with absolute steadiness of flight. Having solved this problem they proceeded to develop a projectile which combined great penetrative power with a most destructive burster. This "Einheits-Geschoss," or "omnibus" shell, came into service in 1912, and in practice fulfilled every expectation. The importance of the projectile question has been repeatedly demonstrated in the naval actions of the present war. Had the German cruisers at the Dogger Bank action been bombarded with so-called "omnibus" shell, it is most probable that the *Blücher* would not have been the only victim. As it was, however, the stout armor of the *Seydlitz* was able to withstand most of the British lyddite shell that struck her.

War experience has justified the prediction that German gunnery would be found to be very accurate, particularly at the longer ranges. Salvoes fired from a great distance wrought great destruction at Coronel and Jutland. On the other hand, the almost purely mechanical nature of the German system betrayed itself at Jutland by the rapid deterioration of the enemy's shooting when his own ships came under effective fire. That scientific gunnery will become even more important in the future is the conviction of all who have studied the lessons of the war and are informed as to the present trend of ordnance development. Guns of unprecedented size and power are virtually certain to make their appearance, and improved methods of sighting and control may extend the extreme range to 30,000 yards, if not more. Under such conditions victory will, in all probability, rest with the side that registers the first hits, for no armor or subdivision is likely to be proof against the devastating effect of the ponderous projectiles of the future.—*Engineer*, 15/2.

THE GERMAN LONG-RANGE GUN.—Following the long distance bombardment of Paris there has been much discussion in army and navy circles over the possibility that a gun could be constructed capable of sending a projectile 74 miles, and in this discussion a number of officers prominent in artillery and ordnance and allied sciences have expressed varying opinions. One of the leading ordnance authorities of the United States Army, whose name is withheld for military reasons, when asked by a representative of the *Army and Navy Journal* to express his opinion whether such a gun could be built and of the possibilities claimed for the mysterious weapon which has been hurling projectiles into the city of Paris, replied:

"We have the authority of the official reports from Paris that the city was shelled from a point outside the allied line and we have the official statement from Berlin that such a cannon was in use. Assuming that such a gun has been built, it demonstrates the possibilities of modern explosives, gun construction skill and the science of ballistics. It is thought not to be impossible to construct a gun capable of throwing a projectile 74 miles; it is a problem in gun construction, involving developing an initial velocity as high as 6000 feet per second. It may even be possible that the range can be increased. It may be that the bombardment of London from the Flemish coast is the *raison d'être* for the construction of such a gun.

"All that is necessary to any particular velocity is to burn behind a projectile the proper weight of powder, and sufficient length of bore in which to properly burn the powder. A gun 35 calibers long of the old Coast Artillery type has an initial velocity of approximately 2000 feet. A gun of 50 calibers has an initial velocity of approximately 3000 feet. It may be considered that increasing length of gun by 15 calibers will give an additional thousand feet velocity, based on what guns have done in the past. Applying this rough rule it would seem possible to get the range indicated for the gun now bombarding Paris if this gun were 95 calibers long.

"It is only essential that the projectile, which in this case was apparently about 406 pounds in weight, should be backed by sufficient powder of the proper size of grain. Projectiles at present have behind them a weight of powder about one-third the weight of the projectile. The higher initial velocity could be obtained by the use of a greatly increased charge. It is, of course, essential that there should be ample space in the breech of the gun in which such a charge could be burned advantageously. It resolves itself, then, into a problem of interior and exterior ballistics; that is, the principles governing pressure and velocity within the gun, and elevation of the gun and muzzle velocity. Until comparatively recently it has been assumed that the maximum range possible would be obtained in firing a gun at 45 degrees elevation. But it is now known that the maximum range is given by an angle of elevation considerably greater than 45 degrees.

"It may be said that if the gun which is now firing on Paris is 9.5 calibers its length is about 80 feet. It is fired at an elevation greater than 45 degrees and the highest point of its trajectory will be above 25 miles. At such high altitude the resistance of the air is very small.

"At the celebration of Queen Victoria's Diamond Jubilee a projectile 9.2 inches in diameter was fired from an English piece at an elevation of 43 degrees. The projectile weighed between 500 and 600 pounds and the measured distance or range shown was about 12 miles. Under present conditions firing at a higher angle the same piece would probably throw its projectile much farther.

"One condition which has probably increased the range of this gun is the use of the thin steel air cap attached to the head of the projectile. This thin steel cap is hollow and is designed to reduce the resisting effect of the air. The gun may be built in two sections and joined after it has been emplaced. In this way many difficulties in transportation could be overcome. The principle of getting increased ballistic effect by extending the length of cannon is not a new one. It has been applied for many years. To prevent such a long gun from drooping toward the muzzle it is probably necessary to

support it in a cradle and perhaps to support the cradle by a truss. In this way it is a simple matter to preserve the rigidity of the gun and also to provide for certain necessary adjustments.

"The range of all cannon depends upon the length of the bore, the elevation at which fired, the proper weight and composition of the explosive and its proper combustion in a space sufficient to give it its full force."

The Bombardment of Paris.—The official announcement was made in Paris on March 23 that the city was being bombarded by long-range cannon. Fragments of shells found bore marks of rifling, which was taken to indicate that they had been fired from a gun, and this was further evidenced by the regularity with which they fell in the city.

A German official communication issued at Berlin on the night of March 24 said: "We have bombarded the fortress of Paris with long distance guns."

An official report on March 25 from United States Ambassador Sharp at Paris said: "The enemy has fired upon Paris with a long distance gun since 8 o'clock this morning every quarter of an hour and 40 shells have reached the capital and suburbs. There are 10 dead and about 15 wounded. Means to combat the enemy gun are in course of execution."

According to unofficial report it was believed in Paris that a German "monster cannon" had been located in the Forest of St. Gobain, west of Laon, approximately 76 miles from Paris. The gun bombarded Paris the greater part of the day on March 24, shells falling at intervals of from 15 to 20 minutes, until about 1 p. m. Bombardment was resumed next day, only a few shells falling, and none has since been reported. Berlin announced on March 25: "In the evening we bombarded the fortress of Paris with long-range guns."

A dispatch to the *Exchange Telegraph* from Copenhagen said: "The bombardment of Paris by a long-range gun was a great surprise to Germany as to other parts of the world. The Berlin *Vorwaerts* says that had the statement not been officially confirmed it would have been considered an unusually heavy war lie."

Paris took the bombardment very calmly, and as indicated by Ambassador Sharp's dispatch, little material damage was done. All experts agree that at such a tremendous range even approximate accuracy is out of the question, and therefore the gun is of use only where a target is presented on a vast scale, like Paris. The object aimed at is moral effect rather than material, but in both respects the gun is likely to prove less effective than airplane raiders.

The latest details concerning shells that have fallen in Paris appear in an article in *L'Homme Libre* of Paris, dated March 27. As cabled by the Associated Press, it says: "The caliber of the shells that are being fired is 8.8 inches and the length of the shell is 20 inches. The shell weighs 200 pounds and contains less than 20 pounds of explosives. The shell is provided with a fuse protected by a threaded stopper, and has a diaphragm inside which divides the shell into two compartments of unequal size. Two holes in the diaphragm afford communication between the two pockets. These facts are accepted as an explanation of the two explosions which on occasion have followed in quick succession and which led to the belief that two guns were firing."

Lieut. Col. J. E. Munroe, Ord., N. A., commandant of the Watervliet Arsenal at Watervliet, N. Y., where the largest pieces of ordnance for the United States Government are constructed, is quoted by the *New York Times* as saying that America had a gun capable of hurling a 16-inch shell 59 miles if some sort of carriage could be invented which would allow an elevation of 45 degrees and still withstand the shock of the tremendous recoil. It would be comparatively easy for us to manufacture a gun which would shoot 59 miles, said the colonel. In fact, there are several in commission that could throw a shell that distance if we had a carriage on which

they could be elevated 45 degrees. The trouble is, no one in the United States has ever devised a carriage that would permit that degree of elevation and survive the shock of the discharge. Personally, I do not think it would be worth much to us to have such a carriage, for its cost would be tremendous, and the damage a gun would be likely to do at such a distance would be entirely out of proportion to the cost. Remember, American coast defence guns have all been constructed with the idea of defence against ships, not cities, and the chances of hitting a ship 50 miles away would be negligible."—*Army and Navy Journal*, 30/3.

GIANT GUN OF GERMANS MADE AT KRUPP WORKS.—The gun with which the Germans are bombarding Paris is a product of the Krupp works at Essen. Emperor William has sent a telegram of thanks to Dr. Krupp von Bohlen and Halbach, the head of the Krupp works. The telegram reads:

"By the bombardment of Paris from a distance of considerably more than 100 kilometers, your new gun has brilliantly stood the test. By the manufacture of the gun you have added a new page to the fame and history of Krupp. I therefore express to you and all your co-workers my imperial thanks for this achievement of German science and labor."—*Evening Star*, 3/28.

SOME DETAILS OF GERMAN LONG-RANGE GUN.—The long-range German gun that began bombarding, continues intermittent attacks. No unexploded shell from the gun bombarding Paris has thus far been found. However, there have been examined in the municipal laboratory fragments of sufficient size to permit the directors to reach certain conclusions. They are of the opinion that a double fuse is used, and that the guns fire 210 mm. (8¼-inch) shells. Apparently four guns are being used, two on each alternate day. The tubes of the guns, which are rifled, are more than 60 feet long. The installation and adjustment of the guns must require at least three months. Doubtless they are concealed under mountains of cement, rendering it most difficult to find and destroy them. Lieutenant General von Rohne, a German authority on ordnance and inspector of artillery, gives in a magazine of which he is editor, details in regard to the long distance German guns with which Paris is being bombarded, according to a Geneva dispatch of March 31. He says they are 20 meters (65½ feet) long. The empty shell weights 150 kilograms (330 pounds) and the charge weighs the same. The projectile attains a height of 30 kilometers (18.6 miles). An official announcement made in Paris on April 2, stated that "one of the German long-range guns bombarding Paris burst, according to prisoners captured on the French front, five of the gun crew being killed."—*Army and Navy Journal*, 6/4.

SUBSTITUTE FOR T. N. T.—Owing to the great demand from both the army and the navy for the standard high explosive, T. N. T., or tri-nitro-toluol, the bureau has decided to use a new substitute product which promises to be satisfactory and of which an ample supply seems available, to supplement the output of T. N. T., and make greater quantities of the latter available for army use.—*Official Bulletin*, 9/4.

COMPLETION OF NAVAL 16-INCH GUN.—The first year of war saw the completion of the latest type of naval 16-inch gun throwing a projectile weighing 2100 pounds. Our newest battleships will mount them. At present our largest battleships mount 14-inch guns, which throw a projectile weighing 1400 pounds.—*Official Bulletin*, 9/4.

TESTS SOON TO BE MADE OF 16-INCH GUN.—It is stated that a 16-inch 50-caliber test gun is practically completed at the Washington Navy Yard, and that it will be proved within the next two months. Twelve of these powerful pieces will form the armament of the new 42,000-ton, 23-knot,

American battleships. The bureau has ascertained that the life of the large caliber gun has been underestimated, the 14-inch 45-caliber gun having been fired a number of rounds far in excess of that heretofore considered to be practicable. The *Scientific American* presumes these good results are largely due to the most excellent powder, which, being a pure nitrocellulose powder, has much less erosive action than those containing more or less nitroglycerin. This is a most valuable quality, for it will mean that the new 16-inch 50-caliber gun, above mentioned, can be given a velocity considerably greater than would be possible with some other powders, such, for instance, as the English cordite.—*Engineer*, 15/2.

RECENT DEVELOPMENTS IN MARINE LIGHTING.—All the systems in use for unattended lights combine with the lighting apparatus some method of sound signalling, the whistling buoy being one which has found considerable

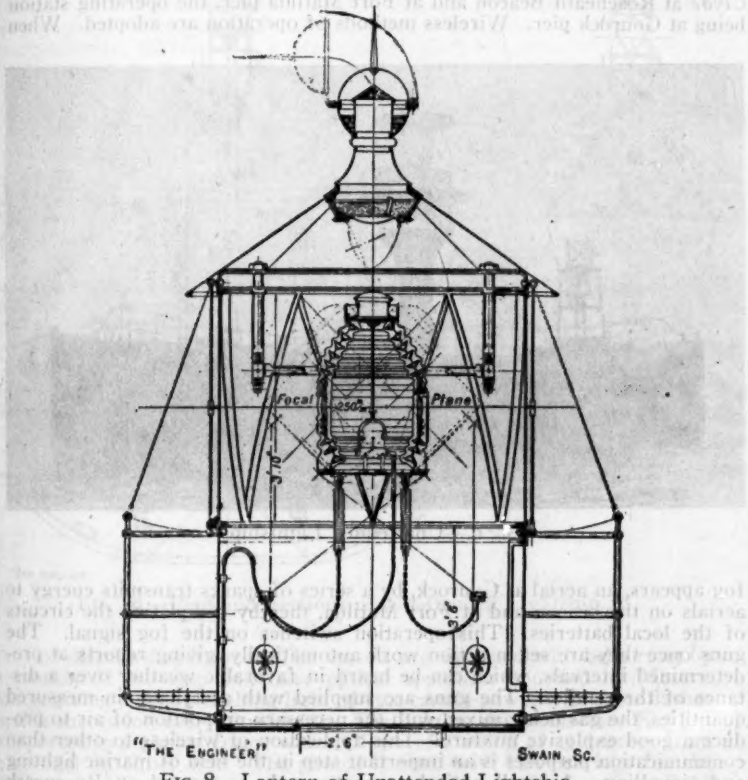


FIG. 8.—Lantern of Unattended Lightship.

application. An air-chamber is formed in the center of the buoy and is connected with the sea by means of a tail pipe of mild steel. In this pipe the imprisoned air is compressed by the action of the waves and operates a whistle placed inside the structure which supports the light, the necessary air inlet pipes with self-acting non-return valves being provided. The usual type of whistling buoy is the Courtney. From the lower end of this buoy

a large tube descends about 30 feet, the object being to reach a depth where the water is unaffected by surface movements; inside the tube the water rises to the mean level of the sea. As the buoy rises and falls by the action of the waves, there is produced an alternate inhaling and exhaling of air; this air is made to impinge on the edge of a whistle which produces a loud deep sound heard, under favorable circumstances, over a distance of five miles. An alternative design is the bell buoy, but it is not nearly so efficient as the whistling type.

There are several methods of operating fog signals on beacons. It is now five years since an automatic acetylene fog gun was introduced by Messrs. Stevenson at Dhuheartach Lighthouse. This gun is claimed to have great advantages over the ordinary tonite explosive signal. It is entirely automatic and fires as frequently as four times every minute, whereas the tonite apparatus can hardly fire more often than once in five minutes and requires constant attendance. Two fog guns have been installed on the *Clyde* at Roseneath Beacon and at Fort Matilda pier, the operating station being at Gourock pier. Wireless methods of operation are adopted. When

FIG. 9.—Unattended Lightship.

fog appears, an aerial at Gourock, by a series of sparks transmits energy to aerials on the beacon and at Fort Matilda, thereby completing the circuits of the local batteries. This operation switches on the fog signal. The guns once they are set in action work automatically, giving reports at predetermined intervals, which can be heard in favorable weather over a distance of three miles. The guns are supplied with acetylene in measured quantities, the gas being mixed with the necessary proportion of air to produce a good explosive mixture. This application of wireless to other than communication purposes is an important step in the field of marine lighting and signalling. A small optical apparatus only is erected on Roseneath Beacon, which is primarily intended to carry a fog signal, but a gas-lighted buoy has been placed at the edge of Roseneath Patch.

It would seem that there is an opportunity for establishing a considerable British industry in the manufacture of welded buoys, which before the war were made almost entirely in Germany.

A good deal of work has been done recently in the development of the unattended lightship, chiefly up to the present in Scotland and France. One

of the earliest unattended lightships, if not the earliest, was laid down at the Otter Rock by the Northern Lighthouse Board. These ships are more effective than buoys, as they carry a more powerful light at a greater elevation, while the large expense of a lightship manned by a crew is avoided. The vessels cost at pre-war prices £3000 apiece, while an ordinary attended lightship costs about £12,000, and the maintenance is reduced from £1500 per annum to a mere fraction of this sum. They cannot, however, give so effective a fog signal as can a fully manned lightship. These unattended vessels have hitherto chiefly been illuminated by means of compressed oil gas.

The Australian Government has just had constructed four unattended lightships to the design of Messrs. D. and C. Stevenson, Edinburgh. The type of vessel for this service is shown in Fig. 9. They are specially designed for very exposed situations on the Queensland coast, and are illuminated by

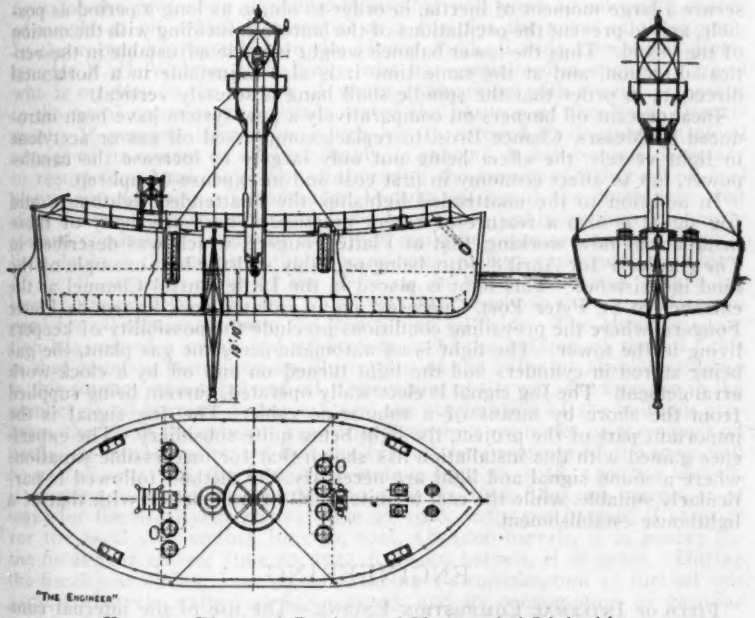


FIG. 10.—Plan and Sections of Unattended Lightship.

means of dissolved acetylene. The vessels are equipped with bells rung by the motion of the ship and have optical apparatus supplied by Messrs. Chance, giving a group flashing light of 1500 candle-power with three flashes in quick succession every 15 seconds. The lighting apparatus—see Fig. 8—is supported in a gimbal frame which allows of a swing of 45 degrees from the vertical on either side. The gimbal is fitted with ball bearings for the trunnions, and is secured to a cross girder attached to the framing of the lantern roof. The trunnion bearings are fitted with locking pins for use when required. The lantern is 5 feet in diameter inside the glazing. The framing is of gun-metal of the helical type, the roof being of copper. The lower portion of the lantern is constructed of mild steel plates and angles, and is fitted with a steel door for ingress from the external gallery. Bird screens of copper wire netting are fixed to the outside of the glazing. The lanterns have been specially designed for service in the cyclone area, and

particular care has been made to prevent cross and down drafts, so that the pilot lights of the burner may not be extinguished. Owing to the prevalence of very minute insects, every opening of the lantern is covered with the finest copper wire gauze. The high pressure tubing from the acetylene cylinders to the lantern is of mild steel, tinned on the interior and is connected to the flasher by a length of rubber tubing. A pressure reducer is fitted between the rubber tube and the steel pipe. The intensity of the beam from an apparatus of this type with a three-jet burner is about 1500 candle-power.

The Aga pendulum lens for an unattended lightship is illustrated in Fig. 10. The spindle of the lantern is carried by a universal joint provided with ball bearings in place of the edge bearings generally used. The upper balance weight is carried upon special bars which, without interfering with the light, relieve the lens frame of all stress. The main object of the pendulum is to secure a large moment of inertia, in order to obtain as long a period as possible, and to prevent the oscillations of the lantern coinciding with the motion of the vessel. Thus the lower balance weight is made adjustable in the vertical direction, and at the same time it is also adjustable in a horizontal direction, in order that the spindle shall hang absolutely vertical.

Incandescent oil burners on comparatively a new system have been introduced by Messrs. Chance Bros. to replace compressed oil gas or acetylene in light vessels, the effect being not only largely to increase the candle-power, but to effect economy in first cost and in expense of upkeep.

In addition to the unattended lightship, the unattended lighthouse and fog signal is also a feature of recent practice. There are many of these installations now working, that at Platte Fougère, which was described in *The Engineer* for April 8, 1910, being probably still the best example of the kind in existence. This light is placed in the Little Russel Channel at the entrance to St. Peter Port, Guernsey, on an isolated rock known as Platte Fougère, where the prevailing conditions preclude the possibility of keepers living in the tower. The light is an automatic acetylene gas plant, the gas being stored in cylinders and the light turned on and off by a clock-work arrangement. The fog signal is electrically operated, current being supplied from the shore by means of a submarine cable. The fog signal is the important part of the project, the light being quite subsidiary. The experience gained with this installation has shown that for inaccessible situations where a sound signal and light are necessary, the method followed is particularly suitable, while the cost is quite small in comparison with that of a lighthouse establishment.

ENGINEERING

FIELD OF INTERNAL COMBUSTION ENGINE.—The use of the internal combustion engine using oil-fuel has lately increased to a very considerable extent, and has become a formidable rival to the steam engine in practically all vessels where powers of under 10,000 horsepower can be employed. The liner, the battleship and the destroyer are about the only three types of ships in which the oil engine has not been applied. The high-speed turbines and water-tube boilers of the destroyer are far less in weight per horsepower than Diesel engines, and in the case of larger ships even where the item of keeping down the weight is not the greatest essential, oil engines have not been built in sufficiently large units to give satisfactory service. This narrows the field of the oil-engine-propelled vessel down to six classes of vessels, *i. e.*, the submarine, the bulk freighter, the small passenger boat, the shoal-draft river boat, the motor tug and the yacht.—*Marine Engineering*, April.

FISH OIL FOR MOTOR-BOATS.—Experiments made in Denmark with motors for fishing boats to determine the practicability of using fish oils for operating them, appear to have been so successful, according to Commer-

cial Attaché I. W. Thompson, that it may be possible for the fishermen who now have boats equipped with kerosene motors to make some slight changes and use this kind of fuel. It is even proposed, he says, that fishermen may make their own cod liver oil while at sea for use in their motors.

When the experiments were called to the attention of the manager of a Copenhagen firm, which makes Diesel engines for the purpose of getting his opinion regarding them, he replied to Mr. Thompson: "I take pleasure in confirming that the fish oil for Diesel motors will be excellent to use as a moving power. Further, I beg to say that, no doubt, the said oil will also be practicable for smaller fishing boats where the motors do not work according to the principle of Diesel motors, but the principle of explosive motors."—*N. Y. Times*, 3/24/18.

FIGHT FOR NAVAL OIL.—The naval authorities are continuing a desperate fight for the protection of public lands that will yield an adequate source of supply of oil, which is essential as a fuel for the naval establishment. In the recent hearings before the House Public Lands Committee Commander N. H. Wright, U. S. Navy, who has specialized in engineering and who is on duty in the bureau of steam engineering with special reference to the naval reserves, has plainly stated the position of the Navy Department. If pending legislation, which has threatened to deprive the naval service of its source of oil-fuel supply, is enacted, it will become necessary to resort to special legislation authorizing the commandeering of oil-fuel plants and property. Commander Wright informed the committee that since the war foreign countries have done a great deal more than previously toward obtaining a supply of oil which could be depended upon. There is little doubt in the minds of the military-naval experts concerning the object of the Roumanian drive of the Germans, in which there was such a big loss of life on both sides, and which was due largely to the urgent German need for oil obtainable from the Roumanian oil fields. The Mexican situation has caused a great deal of anxiety as to the holding of the oil fields in that country, furnishing an illustration of the value of absolute control in this country of a supply of oil. On account of the war, the increase in the number of oil-burning destroyers, and the acceleration of the building program, the Navy Department has revised previous estimates of the navy's oil needs. It is now estimated that the fuel oil requirements of the navy will be as follows: For the fiscal year ending June 30, 1918, 5,000,000 barrels, if at war; for the fiscal year ending June 30, 1919, 8,635,000 barrels, if at war; for the fiscal year ending June 30, 1920, 16,635,000 barrels, if at war; for the fiscal year ending June 30, 1921, 5,854,000 barrels, if at peace; for the fiscal year ending June 30, 1922, 6,574,000 barrels, if at peace. During the fiscal year ending June 30, 1917, the navy's consumption of fuel oil was 2,079,580 barrels, valued at $2,529,212.53, and its consumption of gasoline was 1,937,858 gallons, valued at $437,542.80. Fuel oil consumption has thus increased 15 fold since the fiscal year 1911, when only 137,587 barrels were required. There are now 119 oil-burning vessels in commission; 25 more were building prior to the 1917 program, and 154 are included in the 1917 program. There are in addition ships of various classes building for the emergency, the number of which is not disclosed. The world's available supply of fuel oil as it affects the United States is Mexico, the Caribbean countries, South America, and the Philippines. It is probable that a large portion of our peace supply for the future will come from Mexico, but it is only possible to depend upon a foreign source when there is a reserve which can be made use of at the time when this foreign source may be cut off, in case of war or internal disturbances.—*Army and Navy Register*, 6/4.

BITUMINOUS SCHIST AS FUEL.—Experiments conducted in Montevideo, Uruguay, to discover the practicability of bituminous schist as a substitute for fuel oil in electric plants, show that there are 9500 calories per cubic

meter in the schist as compared with 10,000 in fuel-oil. According to Chargé d'Affaires Craig W. Wadsworth in Montevideo, the oil obtained from bituminous schist has been tried with good results in semi-Diesel engines.—*N. Y. Times*, 4/7.

OIL PROOFING CONCRETE OIL TANKS.—Owing to the scarcity and high price of steel plates, many oil companies have adopted concrete oil tanks. These from a structural point of view are in every way suitable for the purpose, besides being considerably less expensive than steel tanks.

The one difficulty so far has been to make them entirely oil proof, particularly, those in which gasoline is stored. The International Compositions Co., Inc., of 18 Broadway, New York City, have in conjunction with their parent company in Great Britain, manufactured and supplied oil proofing materials for kerosene, gasoline, etc., during the last 30 years, and they have now perfected a method by which these materials can be efficiently used for oil proofing concrete tanks.

It has been known for some time that certain paints are insoluble in gasoline, benzoi and other hydro-carbons, but the difficulty so far has been to get a sufficient penetration into the structure of the concrete, so that any surface damage may not remove the paint and cause leakage. The International Compositions Co., Inc., have now succeeded in adapting their material, so as to obtain a penetration of insoluble gums to the extent of about one-third of an inch into the structure of the cement, with the result that any surface damage of the paint will not impair the resistance against leakage. The material which they use will not affect the structural strength of the concrete in any way. It is, therefore, entirely suitable for this purpose, and should have a considerable sale in the near future, while the scarcity of steel plates for tank construction continues.—*Shipping*, 23/3.

WELDING SHIP PLATES AT HOG ISLAND.—A process of welding the steel plates of the ships to be built at Hog Island and at other shipyards, instead of riveting, is under consideration by the Emergency Fleet Corporation, according to Francis T. Bowles, former chief constructor of the navy. A British naval construction officer, Captain Caldwell, is now in Philadelphia for the purpose of instructing workmen at Hog Island and at other ship schools in the country, in this method of shipbuilding, says *Shipping*. Mr. Bowles states that although the process of electric spot welding in shipbuilding is as yet only in the experimental stage, he thought the plan feasible. The Fleet Corporation now has a group of instructors at Schenectady, training them for use in this work at Hog Island. The corporation has arranged for the construction of machines for spot welding also, but the extent to which it can be used is still in the experimental stage.—*Army and Navy Journal*, 5/4.

THE EFFECT OF MINES AND TORPEDOES ON MERCHANT SHIPS.—In May of last year, the Council of the Institution of Naval Architects issued, as a confidential paper, a report on the "Effects of Explosions of Mines and Torpedoes on the Structure of Merchant Vessels." The principal recommendations were embodied in a notice to shipowners and masters, and circulated by the Board of Trade in June. The admiralty has just consented to the publication of the report.

Your committee have thought it desirable to issue a preliminary report containing suggestions for certain temporary war expedients which might be adopted at very little expense in the ordinary type of cargo vessel, and which they are of opinion would have the effect of greatly increasing their chances of safety after being mined or torpedoed, provided that only one main compartment is opened up to the sea.

The committee, having examined the information placed at their disposal by the Admiralty and the Board of Trade, are of opinion that the loss of many of these vessels has been due to three causes:

(a) The existence of water-tight doors low down in the bulkheads, which could not be closed after the explosion.

(b) Fractures of suction pipes in the attacked compartment, permitting water to flow into adjacent compartments.

(c) The penetration of bulkheads adjacent to the attacked compartments by fragments of plating, frames, rivets, etc.

A large number of cargo vessels have four main holds and six bulkheads arranged as follows: No. 1, collision bulkhead; No. 2, between Nos. 1 and 2 holds; No. 3, at fore-end of boiler-room; No. 4, at aft end of engine-room; No. 5, between Nos. 3 and 4 holds; No. 6, at aft peak.

With fewer bulkheads than this the chances of keeping a vessel afloat are very much reduced.

Taking this six-bulkhead arrangement as a typical case, the recommendations of the committee, as applied to cargo ships with six or more bulkheads, are as follows:

1. All existing water-tight doors low down in main bulkheads should be closed up and so secured that they cannot be opened. If water-tight doors are necessary, they should be fitted high up in the bulkhead.

This is particularly important when bunker coal is carried forward of the boiler-room bulkhead, as a water-tight door through which coal is being trimmed cannot be depended upon.

2. The water-tight door to the shaft tunnel in the engine-room bulkhead should be closed up and so secured that it cannot be opened, access to the tunnel being provided by means of a water-tight trunk carried up to the bulkhead deck.

Cases have occurred when the engine-room has been flooded too quickly to permit of the tunnel door being closed, with the result that considerable quantities of water have entered the after holds through the tunnel, which was not sufficiently water-tight.

An explosion in one of the after holds would be likely to injure the tunnel, resulting in the flooding of the engine-room and boiler-room, unless the tunnel door is closed as proposed.

3. The tunnel, or any other longitudinal passage below the water-line, should be thoroughly water-tight.

4. Each suction pipe, where it enters the compartment from which it drains, should be provided with a screw-down non-return or other suitable valve, which can be worked from the bulkhead deck. These valves should be kept closed at all times, except when the pumps are in use.

5. The amount of injury which the bulkheads might receive from flying fragments will depend greatly on the nature and amount of cargo in the hold.

If the hold is well filled the risk of injury is much less than when partly filled or empty. If the cargo is of a heavy nature the upper parts of the bulkheads will probably be exposed.

It is recommended that, wherever possible, the bulkheads should be protected temporarily by means of timber or other suitable material, forming a splinter screen. In some cases the cargo itself could be utilized for this purpose. The necessity for some protection of this sort is particularly great in the case of ships in ballast.

Very little time and money would be expended in giving these measures of protection to a large number of cargo vessels.

These vessels having more numerous bulkheads in proportion to their length than the ordinary cargo steamer already reported on, should be better able to withstand attack from mine or torpedo.

On the other hand, many mail and passenger steamers have water-tight doors in the 'tween decks giving communication through the water-tight bulkheads between passenger and other spaces. They have also side scuttles for ventilating cabins, and numerous sanitary discharges very near the water-line. These are liable to be submerged and to admit water, should the scuttles be open or the controlling valves to the baths, water-closets, etc.,

be inefficient. This liability will be greater in the case of vessels having small initial stability or possessing longitudinal bulkheads, if damage occurs in way of such bulkheads. In some vessels also there are passages leading through bulkheads in the ship's hold to allow the firemen and greasers to gain their quarters without traversing any of the passenger decks. All these features have proved to be sources of danger.

Further, the hatchways in such vessels are relatively small, and do not afford such instantaneous relief from air and gas pressure resulting from an explosion as in the case of the larger hatchways of cargo vessels. For this reason it is considered that bulkheads in the neighborhood of the explosion are more liable to distortion in mail and passenger vessels than in cargo ships, and that water-tight doors on such bulkheads cannot be relied upon to close after an explosion. Devices for closing doors from the bridge are likely to fail, both by reason of the above-mentioned distortion and because of the probable destruction of the hydraulic or electric mains provided for the purpose in the region of the explosion.

In view of the foregoing it is suggested that the following measures be adopted in existing vessels during the continuance of the war:

1. The disuse of all firemen's passages and the closing up of all doorways in bulkheads traversed by them when below the bulkhead deck, the firemen passing to and from their quarters by way of an upper deck, where a temporary screened passage could be provided if necessary.

2. All openings from the engine-room into shaft tunnels to be abolished and access to tunnels provided through trunks abaft the engine-room bulkhead; these trunks to be water-tight to the bulkhead deck.

3. All water-tight doors in transverse bulkheads throughout the machinery spaces to be closed and so secured that they cannot be opened, provision being made for efficient supervision in each separate compartment. If this is deemed impracticable in certain cases, it is recommended that in such cases the doors on the level of the stokehold and engine-room floors should be closed and others fitted as high up as possible on these bulkheads.

4. All water-tight doors in transverse bulkheads on decks below the bulkhead deck to be closed and so secured that they cannot be opened, additional exists to the decks above being provided where necessary.

5. All side scuttles situated below the first deck above the bulkhead deck should be closed up and sealed. Special fan ventilation is to be provided if necessary for the cabins affected.

6. Each suction pipe where it enters the compartment from which it drains should be provided with a screw-down non-return or other suitable valve which can be worked from the bulkhead deck. These valves are to be kept closed except when the pumps are in use.

7. Where ventilation trunks, etc., pass through water-tight bulkheads below the bulkhead deck, valves operated from above that deck should, in all cases, be fitted at the bulkheads, and if any trunk pierces the bulkhead at a low level it is strongly recommended that a new lead should be devised to carry it through the bulkhead at as high a level as possible.

8. Valves on all sanitary discharges at the ship's side should be such as will prevent water passing inboard through them when the vessel has considerable trim or list. These valves should be frequently examined and kept in good order.

9. Any ash or rubbish shoots, etc., having upper ends opening on decks below the bulkhead deck should be provided with water-tight covers, and instructions should be issued to ensure that these covers are always in place when the shoots are not in use.—*Engineering*, 22/3.

PLANING MACHINES OF CONCRETE.—We read in *The Iron Age*, New York, that two gigantic metal planing machines, the principal parts of which will be of monolithic reinforced concrete construction, this including the beds, housing of plattens, with cast iron for bearing surfaces, are being built by the Amalgamated Machinery Corporation, Chicago. The work of

the machines is the planing of beds for long gun-boring machines. The concrete beds of the planes are 184 feet in length; the plattens are 90 feet long and 13 inches thick. The width between housings is 72 inches, and the cross-rail, which is stationary and faced with cast iron, is 4 feet square. They will plane 36 inches down to 20 inches.—*Engineering*, 22/3.

DIE-CASTING OF ALUMINIUM-BRONZE.—*Die-Castings* may be defined as "finished castings, made by pouring molten metal, flowing by gravity or under other external pressure, into a metalic mould."

Advantages of Die-Casting.—Some of the advantages of die-casting are:—

1. The accuracy and uniformity of the castings. They can be made to specification 0.005 per inch, or even less for small parts.
2. Machining costs are either eliminated altogether or are greatly reduced.
3. The process is continuous, and the output is generally much greater than is the case with sand-casting.
4. Articles which it would be impossible to sand-cast may be successfully die-cast.

Although the process has been in operation for over 20 years, it is only during the last 10 years that it has assumed importance as a separate industry, and this is largely due to the development of the automobile and aeroplane.

Metals Employed.—The alloys employed may be divided into five classes, according to whether the principal constituent is (1) zinc, (2) tin, (3) lead, (4) aluminium, (5) copper.

Owing to their low melting-points, alloys of the first three classes were initially employed, but the castings lacked strength and rigidity. An average zinc base alloy has a tensile strength of about 8 tons per square inch, with practically no ductility, but these alloys are very liable to corrosion and distortion.

The tin and lead-base alloys include a large number of the "Babbitt" or bearing metal type, and many bearings are now being die-cast.

The low specific gravity, cheapness and strength (when alloyed) of aluminium, have been the principal factors in its development as a die-casting metal. The chief drawbacks are:

(1) Its high melting-point (compared with lead, tin, and zinc).
(2) Its tendency to attack iron when molten.
(3) Its high shrinkage.
(4) Its weakness at high temperatures.

On account of (2) the "plunger" type of machine has been largely superseded by one employing air-pressure, or by utilizing the pressure of the riser or gate. A die using zinc-base alloys lasts almost indefinitely, but, when using aluminium alloys, cracks begin to show after 2000 or 3000 castings have been made. The high shrinkage of aluminium has been reduced by alloying, and need not exceed about 1.4 per cent.

The weakness of the alloys at high temperatures is responsible for the formation of cracks which develop while the metal is solidifying in the mould. Thus the strength of the copper-aluminium alloy containing, say, 12 per cent copper drops from 8 tons to 10 tons per square inch at 0 deg. C. to 3 tons to 5 tons at 350 deg. C.

Notwithstanding these drawbacks, aluminium alloys of very variable composition are being successfully die-cast on a large scale.

Brass and Bronze Die-Casting.—The next step in the process was to surmount the difficulties connected with copper-base alloys, which have a much higher melting-point. The literature on the subject is as yet very scanty, but most of the workers in the field express the opinion that brass or bronze die-casting is almost a commercial impossibility. On reading the accounts of the work done by the Doehler Die-Casting Company,

Work, Webber, Schulz, Pack, and Norton, one arrives at the following conclusions:

1. The chief difficulty in the process is the high temperature (900 deg. to 1000 deg. C.) for casting "yellow metal." This has several effects. The zinc in the brass attacks the steel die, which rapidly deteriorates, so that no more than 1000 castings can be obtained. The high shrinkage of brass sets up strains within the die which further impair its accuracy. Since the die cost (anything from 5*l.* to 200*l.*) is the prime factor in die-casting, this is a serious matter. For the same reason it is impracticable to use an iron container for the molten metal, as the alloy would rapidly become contaminated thereby; hence air-pressure cannot be employed to force the metal into the die. This means pouring from the crucibles, with consequent slowing down of production, if (as is often necessary on account of expense) only one die can be used. Another consequence of the high temperature and slow pouring is the large amount of dross which is formed. Also ordinary brasses are not sufficiently strong at high temperatures to withstand the shrinkage strains which are set up.

2. It is very difficult to produce brass die-castings which are consistently free from blowholes or shrinkholes. The former are caused by air being entrapped in the mould, and they cannot be overcome by simply increasing the pressure in the mould or by carrying out the process *in vacuo*. By a careful study of the venting and gating of each part, however, this unsoundness may be practically eliminated.

3. Brass and bronze die-castings are only a commercial success if the parts cannot be completely produced by automatic machinery, or when they obviate numerous difficult machining operations, involving different settings of tools. To compete with the machined products the die-castings must be rapidly made, must be accurate to within $\pm$ 0.002 per inch, and must have a smooth polished surface. Recent developments in foundry and machine shop practice have made it possible for many parts to be now more cheaply sand-cast, and "yellow" metal die-casting is "practically restricted to pieces of fairly simple shape, weighing between ½ oz. and 3 lb."

The experiences of the authors in this connection have been chiefly in the use of brass (60:40) containing about 2 per cent aluminium; manganese brass; and "aluminium-bronze" containing iron. In the first case, the aluminium is added to give fluidity to the metal and better definition to the castings. In the second case, manganese brass of usual composition is used, containing less than 1 per cent manganese, with a little iron and aluminium. The chief objection to these metals is that the surface of the die becomes rapidly covered with a coating of zinc oxide, which must be brushed off after every cast or the definition is spoiled. Various methods have been tried to overcome this difficulty, but so far without complete success. Our best results, however, have been obtained with "aluminium-bronze" containing iron. The first alloys experimented with were of copper-aluminium containing about 10 per cent aluminium, the balance being copper. The results were disappointing, for the metal did not lie so "kindly" to the surface of the die as it might have done, and the definition of the edges was poor. After repeated trials it was decided to add a little iron, when much better results were obtained.

In their masterly research on the copper-aluminium alloys Carpenter and Edwards* brought the investigation to a point "where the way is clear for investigating the influence of a third metal." Rosenhain and Lantsberry,† in their introduction to the Ninth Report, discuss the reasons which led to the selection of manganese as the third metal, and it is rather singular that iron does not seem to have been considered as even a possibility. Vickers‡

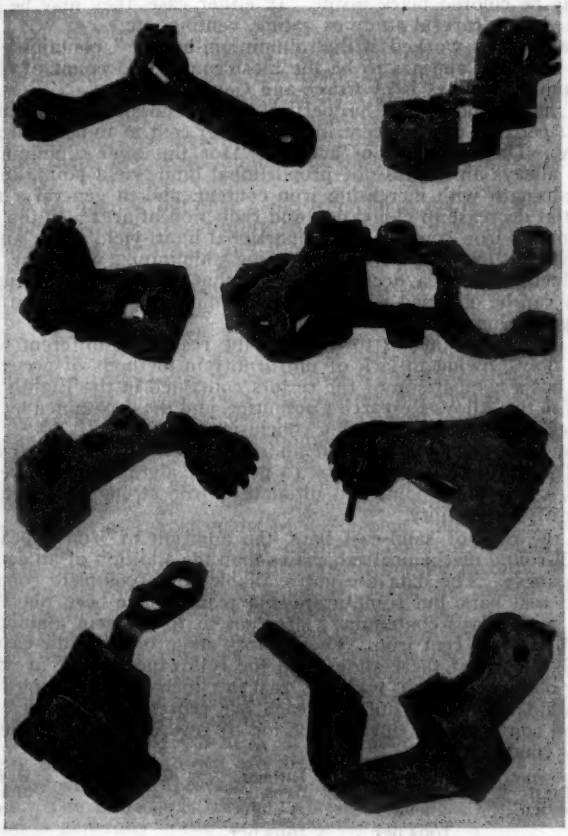
* Carpenter and Edwards, "Eighth Report to the Alloys Research Committee," 1910.

† Rosenhain and Lantsberry, "Ninth Report to the Alloys Research Committee," 1907.

‡ *Mechanical World*, August 17, 1917.

alludes to the prejudice which appears to exist in the minds of most foundrymen against iron in copper alloys, probably due to its harmful effect when present in brass in any quantity. He also states that the use of iron in "aluminium-bronze" is no new thing, but has been common in Germany and the United States for some years. While claiming that it improves the metal for sand-casting, he questions its use in die-casting, for the following reasons:—

1. In sand-casting it is necessary to add iron in order to prevent the "excessive crystal growth" which is "such a drawback to the 10 per cent aluminium-bronze."



EXAMPLES OF ALUMINIUM BRONZE DIE-CASTING WORK FROM IRON DIES.

In die-castings this is not necessary, as the chilling effect of the die is sufficient to keep down this growth.

(That the iron has this effect was shown by Corse and Comstock.§ Combined probably with aluminium and copper the iron is the first constituent to separate out, in the form of small black crystallites, which form nuclei round which the *a*-solution crystallizes, thus reducing the grain size.)

§ Transactions of the American Institute of Metals, September, 1916.

2. Iron accentuates the shrinkage of the bronze, consequently increasing the tendency to form the pear-shaped cavities commonly found in aluminium-bronze die-castings.

The authors do not agree with the above conclusion limiting the usefulness of copper-aluminium-iron alloys to sand-castings, having produced many thousand die-castings, in these alloys. The cavities referred to are certainly a difficulty to be overcome. They are either shrink-holes, caused by the large contraction of the metal, or blowholes caused by air being entrapped in the die by the molten metal, and they may be detected in a casting by finding its specific gravity. Their direction is often radial, and they may be colored black inside. In either case, they may be practically eliminated by a careful study of gating, venting, etc.

Tetmajer‖ has worked with "aluminium-bronze" containing iron and silicon, but what appears to be the most complete account of the copper-aluminium-iron alloys is by Corce and Comstock.¶

They have studied the properties of the possible combinations containing 1 per cent to 4 per cent iron and 7 per cent to 10 per cent aluminium inclusive. Their conclusions are that "for the same aluminium content there is always an increase of proportional limit, yield point, and ultimate tensile strength with increasing iron content, and in general a rather less substantial decrease in elongation and reduction of area. In the same way, with constant iron content, the proportional limit, yield point, and ultimate tensile strength increase with increasing aluminium, while the elongation and reduction of area decrease. Also, that for a given strength, better ductility can be obtained with a lower aluminium and high iron alloy, than with higher aluminium and lower iron."

It is, of course, difficult to compare the results of different workers on similar alloys, owing to lack of uniformity in methods of preparation and testing, but a comparison of the results contained in the Eighth and Ninth Reports to the Alloys Research Committee, and those obtained by Corse and Comstock, leads to the following conclusions:

1. Iron and manganese, when added respectively to copper-aluminium alloys (containing 7 per cent to 10 per cent aluminium), have a similar effect, *i. e.*, the yield point and ultimate tensile strength are raised at the expense of the ductility.

2. In the case of sand-cast bars, the addition of iron appears to give better all-round mechanical properties than the addition of an equal amount of manganese. The data are not available for a complete comparison of the chill cast bars, but some promising results have been obtained by the authors with alloys containing 7 per cent to 10 per cent aluminium and 1 per cent to 4 per cent iron. The authors are producing die-castings commercially in one of these alloys, and the following are the average results recently obtained from 24 test bars, cast in 1-inch chill and cooled in air.

It should be pointed out that each bar represents a batch of castings, produced consecutively during a period of several months, under ordinary foundry conditions.

Diameter of test-section	Yield-point	Ultimate tensile strength	Elongation on 2 in. per cent	Reduction of area per cent
	tons per	tons per		
in.	sq. in.	sq. in.		
=0.564	14.7	35.5	24	21.8

These results compare favorably with those for the chill cast bars containing 7 per cent to 10 per cent aluminium given in the Eighth Report, and for those containing 8 per cent to 10 per cent aluminium and 1 per cent to 5 per cent manganese given in the Ninth Report. In several cases the latter alloys give better results, but whether they may be die-cast or not is open to question.

‖ *Mitteilungen der Material-prüfungsanstalt*, IX Heft.

¶ Transactions of the American Institute of Metals, September, 1916.

Heat Treatment.—The mechanical properties of the copper aluminium-iron alloys may be profoundly modified by heat treatment, and this probably accounts for the variable results obtained with the same metal under ordinary casting conditions. Consequently, accurate pyrometric control of the die-casting process is advisable, if consistent results are required. The temperature of the molten metal should be known, and that of the die itself, also the rate of cooling of the hot casting should be standardized. Much different mechanical properties would result if instead of quenching the casting red hot from the chill, in cold water, it were allowed to cool slowly in air.

An advantage of the alloy used by the authors is that it is sufficiently fluid to fill the die and give satisfactory castings through a wide range of temperature.

Material for Dies.—The authors have experimented with several materials, ferous and non-ferrous, for die-making, but have had the best results with a close-grained cast-iron, as hard as is consistent with good machining properties. The block of iron from which the die is made is itself chill cast, to give these qualities. Sometimes the dies have been cast almost to shape before machining, but the results have not been very satisfactory.

It need not be pointed out that a die when once made is only suitable for one particular alloy. Each alloy has its own requirements regarding gating, venting, and shrinkage, and the particular problems of each new part render it very difficult to make a correctly designed die at the first attempt. In an iron die as described above, there can be made from 5000 to 7000 castings similar to the "Butterfly" type of carbon brush-holder (marked No. 1) that is shown, along with other examples of die-casting, on this page, before it shows signs of deterioration. No facing or special treatment of the die surface is necessary, nor is the die cooled down every few minutes; but the plugs, which are of steel, are dipped in a graphite wash between each cast to preserve their shape; even then they do not last so long as the die. The other illustrations represent chiefly different types of carbon brush-holder, all of which are being die-cast on a commercial scale. The design of the die is a most important factor, and here it is where experience is the best guide. The design of the part itself should conform to the special requirements of die-casting, and there is need for the closest co-operation between the engineer, metallurgist and foundry foreman. The number and shape of the part of the die, method, and order of withdrawing the cores, venting, situation, shape and size of the gate, all must be carefully considered in designing a new die.

Cost of Process.—No general rule can be laid down with regard to costs. In some cases die-casting is cheaper, in other cases dearer than sand-casting. The cost of dies, material, labor and machining must be gone into before a decision can be come to as to which is the more economical process. The cost of machining and assembling of the "Butterfly" type of brush-holder above referred to is eight times as great when sand-cast as it is when die-cast, and the other parts shown are also cheaper die-cast. The castings are not sold by weight, as the cost of labor varies both in making the dies and castings. The die cost is treated as a separate item from that of the castings, and is generally borne directly by the customers.

Die-Casting on a Scientific Basis.—For a scientific investigation into die-casting, the following might be carefully studied:

The alloy:

(1) Coefficient of expansion at different temperatures.
(2) Specific heat.
(3) Thermal conductivity.
(4) Mechanical properties at high temperatures.
(5) Mass, volume and surface area of casting.
(6) Latent heat of fusion.
(7) Metallography.
(8) Pressure on metal in die.

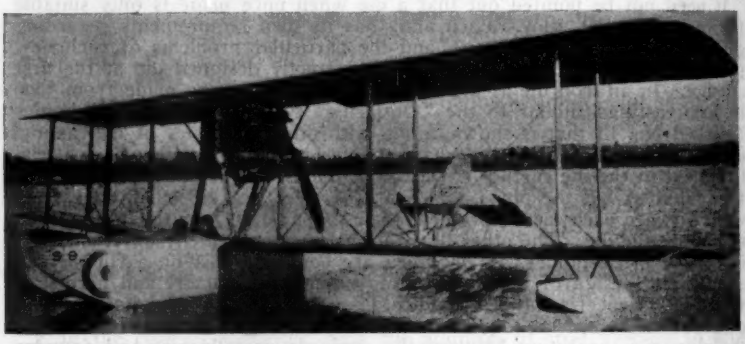
The die material:
(1) to (5) As above.
(6) Possible attack by molten alloy.
Casting conditions:
(1) Temperature of molten metal.
(2) Temperature of die.
(3) Length of time in die.
(4) Rate and method of cooling of casting.

Even with all the above information, however, it would still be necessary, in the case of a new part, to go on more or less empiric lines before a satisfactory casting could be produced.

It might be feasible to design a standard die which would serve as a basis for comparison of results obtained by different observers.

Conclusion.—One of the authors previously quoted summarizes the position by saying that "the principal secret of die-casting is experience, which is the result of tireless effort, skill, patience and—capital."

The thanks of the authors are due to the British Westinghouse Electric and Manufacturing Company, Limited, for permission to publish the above paper and the accompanying photographs.—*Engineering*, 22/3.



No. 1.—The *Savoia* 168 H. P. Reconnaissance Flying Boat. (Italian Official Photo.) (*Aerial Age Weekly*, 15/4.)

LIBERTY MOTOR IN U. S. SEAPLANES.—Secretary Daniels on March 20 issued the following statement: "A navy flying boat equipped with a liberty engine flew from the naval air station, Hampton Roads, Va., to Washington yesterday morning in two hours. The distance covered was about 180 miles. The motor and plane functioned as expected and the aviators report that the engine ran without a miss. Three naval aviators made the trip in the plane, Lieut. D. H. McCulloch, Ensign Slater and Ensign G. M. Brush. Seaplane hangars have been erected on the eastern branch of the Potomac at Anacostia, and similar flights will be made. The navy has several service seaplanes equipped with the liberty engine which are flying daily."—*Army and Navy Journal*, 23/3.

FIRST SEAPLANE WITH LIBERTY MOTORS TRIED OUT.—America's first fighting seaplane, equipped with liberty motors, has been tried out and accepted, and a number of the craft are now being delivered for the use of the naval air service. They are the advance guard of a big fleet which will be added to the forces engaged in submarine hunting in the war zone.

A second type of fighting plane for the American Army known as the Bristol model has now reached the production stage and a considerable number will be available during the present month.

Still another type, a two-seated machine, is being manufactured.

Construction details of these planes never have been published. It is known, however, that the seaplanes are substantially similar to the British flying boats and are equipped with two liberty motors, which provide approximately 700-horsepower. This is understood to be much in excess of the power used in similar British craft and their performance is expected to be proportionately better.

In this connection it was learned that engineers of the aircraft board now have overcome the last minor defect of the liberty motors, having to do with the lubrication system.—*Naval Monthly,* April.

ASKS $188,000,000 FOR NAVAL AVIATION FOR 1918.—An appropriation of $188,000,000—double that originally proposed—was asked of Congress by Secretary Daniels for naval aviation during the next fiscal year. Recent war developments, the Secretary said, made necessary the larger sum.—*N. Y. Herald,* 19/3.

THE LIBERTY MOTOR.—Several official statements have been made to the effect that the liberty motor is in production. In fact, it has been stated that the various companies now engaged in its production, such as the Packard Company, the Lincoln Motors Company, etc., have or soon will reach a daily production of 250 engines a day.

The aeroplanes shipped to France have been equipped with the liberty motor. Likewise, in the early part of March, the first fighting seaplanes built in America have been accepted for service. These seaplanes, which are said to be substantially similar in construction to the British flying boats, are each equipped with two liberty motors giving a useful output of about 700-horsepower.

In the final tests and refinements of the motor the aircraft board was assisted by a supervising committee consisting of D. McCall White, Mem. Am. Soc. M. E., and Henry M. Crane, Mem. Am. Soc. M. E.

A bit of light has been thrown on the history of the liberty motor by Emden S. Hare, president of the Packard Motor Company of New York, in an address at the dinner of the Sphinx Club in New York. According to this statement the liberty motor was the outcome of three years' work on the part of the Packard engineers. The company offered this engine to the government. At the time, the aircraft board felt that it would be best in the furtherance of their war plans not to put this motor out under the name of the Packard Company, and the company patriotically sacrificed its private interests in the motor and consented to let its work be merged under the name of liberty motor.—*Journal Am. Soc. M. E.,* 18/4.

GERMAN AERIAL TRAPS.—Some details are given by the frontier correspondent of the *Telegraaf* of a new method adopted for catching hostile airmen which the Germans are employing at Zeebrugge. Towards evening, it is said, they send up 20 captive balloons, without crews, and attached to electrified steel cables. The electric barrier thus created is claimed to constitute a great danger to all airmen coming into contact with it.

PARACHUTE LIGHTS TO BETRAY AIR RAIDERS.—One of the German pilots who participated in the recent air raid on Paris, in an account in the Berlin *Lokal-Anzeiger* of his experiences during this trip says: "Suddenly the French put 'lanterns' in our way. Above and beneath us, ahead and astern, they hung quietly in the air and with their blinding glare lighted up our planes. They are rockets with parachutes provided with their brightly burning fuses. Some special mechanism enables them to remain steadily for a full minute in the air. Sometimes dozens together appeared near us to show our machines to the anti-aircraft guns."—*Scientific American,* 6/4.

NEW TYPE OF GERMAN AIRPLANE.—The Germans, it is stated, have manufactured a new and improved type of airplane. It is fitted with three propellers, one being so arranged that it can keep the airplane stationary above a certain point for a few minutes, thus permitting the bomb thrower to aim with greater accuracy.—*Army and Navy Journal*, 6/4.

PERSHING RECOMMENDS SIX-GUN PLANE.—More powerful armament has recently been proposed for fighting airplanes. In response to an inquiry, General Pershing has recommended at least two heavy and two light machine guns, adding:

"We should anticipate the use of three Vickers synchronized guns and three Lewis unsynchronized guns on every airplane."—*Aviation*, 15/3.

A CURTISS BIPLANE DIVING DOWN AFTER A LOOP, OVER NEWPORT NEWS. PHOTOGRAPHED FROM ANOTHER AEROPLANE.

UNDERGROUND AEROPLANE SHELTERS.—The recent report in the papers (says a writer in *Motor Cycling*) that the Germans have now constructed underground aeroplane shelters at their much-bombed aerodromes in Belgium seems quite probable in view of the extraordinary ramifications that underground warfare has reached. Whether it is true that the machines and pilots taxi up inclined ways from these underground shelters is another matter. These caverns must be of enormous area, especially if they are used to accommodate one giant bombing machine of 80 feet or 100 feet span. Even if these machines were made to fold up for the purpose of ease of storage, they would take up a great deal of room, for you cannot even store a medium-sized aeroplane in the space occupied by a motor bus, which is so much more compact in size.—*United Service Gazette*, 28/2.

U. S. AIRPLANE MARKINGS.—The Signal Corps authorizes the following:
All airplanes manufactured in the United States for the army and navy will bear a red, white, and blue bull's-eye of three concentric circles, similar to the insignia of allied planes, on the wings, and vertical red, white, and blue stripes on the rudders.
The specifications follow:
Wings: Red circle with diameter approximately equal to chord (of wing), one blue circle with diameter two-thirds of chord, center white circle with diameter one-third of chord.
Rudder: Vertical red, white, and blue stripes, starting at rudderpost.
The above markings were adopted by the joint army and navy technical aircraft board on January 11, and approved by the Secretary of War and the Secretary of the Navy.—*Official Bulletin*, 4/3.

BIG ZEPPELIN PLANT DESTROYED BY FIRE.—The Zeppelin factories at Mamselle, near Friedrichshafen, were destroyed by fire Saturday night, it was learned here to-day.—*Baltimore Evening Sun*, 15/4.

HUGE HUN AIR FLEET DESTROYED BY FIRE.—The material losses in the fire which destroyed the aircraft factories at Friedrichshafen were enormous, including 30 squadrons of airplanes reserved for use against the American air fleet, it was announced here to-day.
One hundred and forty persons were killed and 200 injured.—*Baltimore Evening Sun*, 16/4.

LIBERTY MOTOR USE LIMITED.—Concerning the liberty motor, the committee (Congressional) said:
"It is not designed for and cannot be used in the swift single-seater fighting machine. A few of the motors are being flown in appropriate machines. The reports, as recited to the committee, indicate that with the latest changes the motor will be satisfactory for the character of work expected of it, and that it bids fair to hold its own with foreign motors of similar power, weight and purpose. For the campaign of 1919, the liberty motor must undoubtedly be further improved to keep up with the evolution constantly going on along the front.
"A total of 2500 liberty motors have been ordered, 122 have been completed for the army and 142 for the navy. Four have been shipped overseas. Some of those already delivered are being altered to overcome the defects ascertained during the last few weeks.
"The production of liberty motors to date is, of course, gravely disappointing. The testimony shows that experts of the highest reputation and experience have since last July repeatedly warned the officials of our government that the perfecting of a newly designed motor must inevitably involve many months of painstaking experiment, accompanied by many setbacks and disappointments. In spite of the unanimous testimony of motor experts along this line the government officials having the manufacture of the liberty motor in charge have made the mistake of leading the public and the allied nations to the belief that many thousands of these motors would be completed in the spring of 1918."
The production of combat planes is declared thus far to have been a substantial failure and to constitute a most serious disappointment in war preparations.—*Baltimore Evening Sun*, 10/4.

SAY LACK OF OXYGEN CAUSES AIR WRECKS.—They stood in a compact, little group on the wide sweep of level ground that marked the training ground of an aviation field. Three were United States Army officers. They wore on their left breasts the silver wings that showed they were expert birdmen, who had learned to emulate the swallow's flight in machines of man's invention.

The group was watching the tiny dragon-fly that was skimming far above. Admiration showed on each countenance as the fragile thing climbed to a dizzy height, dipped and dived toward earth with lightning-like speed, and then straightened out.

Now the droning of the motor has stopped as the pilot has shut off the engine and begins to volplane from a great height. Faster and faster dashes the frail thing toward earth at terrifying speed. He must straighten out soon or meet disaster. Breathlessly the little group watches, listens for the hum of the motor that will tell that the headlong flight has ended and the pilot has straightened out to safety, but the machine continues on its perilous course.

Too late. He's too near the ground now to straighten out. They can see the driver working dully to make a safe landing. Some stand breathless, awe-stricken. Others turn from the sickening sight.

Crash!

With a sound of splintering wood the biplane hits the ground with terrific impact, and smoke begins curling up from the mass of splintered wreckage. Spurred to the necessity of immediate action, the men race to the scene, a bare 200 yards away, and begin to work frantically to release the poor lad buried beneath that tangled mass of wood, canvas and wire.

"There he is," cries one of the officers.

Lying amid the wreckage, his face and head gashed by splinters of wood, the pilot lies with eyes closed, face white and drawn. Tenderly they lift him out and place him in the ambulance.

"He'll live if nothing inside is injured," said the officer who wore the insignia of the Medical Corps.

"High altitude probably caused reduced pressure and made him lose control," mused one of the officers.

"That must have been it," affirmed another, "for the motor was O. K. when he volplaned time before last, and his controls seem to be all right. Guess he couldn't stand the pressure. It's funny what high altitudes do to some people."

In many lands, on many fields, the same accidents were chronicled for the first three years of the European war. Always either mechanical defects or reduced pressure from high altitudes was blamed.

Finally it occurred to members of the Army Medical Corps attached to aviation sections that perhaps there was some other cause that made apparently sound men lost control of their airplanes. Tests were made.

Aviators were being maimed and killed through loss of control because of the diminished percentage of oxygen at higher altitudes. They remembered the difficulty in breathing related by mountain climbers, aeronauts and others who reached the rarer atmosphere of unusual heights.

With the entry of the United States into the struggle, army medical officers at once took up the problem. Tests were conducted at various flying fields.

It was found individual flyers began to suffer from the lack of oxygen at varying heights, but that the same individual began "breaking up" at the same altitude day after day.

Perhaps one of the greatest difficulties encountered was the fact that the flyers did not realize that they were being affected by the lack of oxygen as the height increased. Even after they crashed to earth they had no idea why it had happened, for "everything had been working all right when she started the nose dive." That is what those who survived said.

What really happened? Just this:

The lungs require 21 per cent of oxygen or 65 millimetres of oxygen when a person is on the ground. As the birdman climbs swiftly to greater heights, the air contains less oxygen and the pilot finds it increasingly harder to keep that amount in his lungs. It requires faster breathing. This increases commensurately the higher he climbs.

Inversely as the machine descends swiftly from a higher altitude to a lower, he gets more oxygen with less effort. In either event, he begins to lose efficiency. Co-ordination between hand and brain decreases. He is

slower to respond to what his brain telegraphs him to do and less accurate in doing it. He fumbles at the controls.

Sight becomes less keen, especially at a short focus. His attention on the aeroid, which shows his height, is not so constant, his hearing is affected so that he cannot distinguish by the sound of his motor whether it has accelerated or slowed. Finally he faints—and the machine plunges to earth.

It has been recommended that all aviators be tested and classified as to ability to stand lack of oxygen. Those who cannot go to greater heights because of its effect on their efficiency, will be kept in bombing and observation machines, which fly at comparatively low altitudes.

Those who can go to great heights without being affected, will be chosen for the fast battle and scout planes, which must fly in squadron formation, which, like a chain, is only as strong as its weakest link—in this case the aviator who will first succumb to want of oxygen.

Naturally a remedy for this condition has also been suggested. It is to have each airplane carry a tank of oxygen, which will be coupled to the aeroid, or height indicator. As the average aviator begins to "break up," or become less efficient, at 13,000 feet, at this point the indicator of the aeroid will automatically open a valve connected with the oxygen tank, and the aviator, breathing through a mouthpiece, will be supplied with the normal amount. As the height increases, as indicated by the aeroid indicator, the valve will be opened wider and a correspondingly greater amount of oxygen will be administered.—*Baltimore Evening Sun*, 9/4.

AIRCRAFT PROGRAM SCORED AND PRAISED.—Difficulties encountered in developing the nation's great aviation program were presented to the Senate in widely different aspects through majority and minority reports on the military committee's protracted investigation of the subject.

The majority, through Senator Chamberlain, of Oregon, chairman, declared the entire aviation situation gravely disappointing, charged government officials responsible for the program with misleading the public with over-optimistic statements, and urgently recommended that control be taken from the Army Signal Corps and placed in the hands of a single executive officer appointed by the President. This report is understood to have been adopted by a vote of eight to six in the committee.

Senator Myers, of Montana, and Kirby, of Arkansas, joined Senator Sheppard, of Texas, in the minority report, which asserted the majority failed to give an accurate impression of the facts, and that in the face of unparalleled obstacles "on the whole the record of the Signal Corps is one of which every American can be justly proud."

Although the majority says the production of combat planes has been a substantial failure, apparently there is no great difference of opinion between the majority and minority as to the present status of the program as a whole, the disagreement arising over whether there has been inefficiency and procrastination and misleading publicity, as the majority charges.

Some information heretofore regarded as closely guarded secrets is disclosed in the reports. Among other things it is shown that:

Primary training planes to the number of 3458 and 342 advanced training machines have been completed in this country.

Production of training planes in the United States is now proceeding on quantity basis.

Arrangements have been made with France for the construction there of 6000 battle planes by 7000 American mechanics sent across the ocean for the purpose and using 11,000 tons of American material;

Construction of 11,500 battle planes in the United States is planned;

Twenty training schools in America have graduated 1926 reserve officer aviators, although few of them have been given advanced training, and that

Of 1200 cadets sent last year to England, France and Italy for training only 450 have completed primary training, and because of the lack of planes the others may have to be recalled home.

The liberty motor, the majority report declared, is "just emerging from the development or experimental stage" and "is not designed for and cannot be used in the swift, single-seated fighting machines." Of 22,500 liberty motors ordered, the committee said, only 122 have been completed for the army, 142 for the navy, and four shipped overseas.

"The production of liberty motors to date is, of course, gravely disappointing," says the report. "Government officials . . . have made the mistake of leading the public and the allied nations to the belief that many thousands of these motors would be completed in the spring of 1918. Information of this sort, not borne out by the facts, has been injurious, and its constant dissemination the committee regards as misleading and detrimental to our cause."

Regarding the training of aviators the committee found there had been "very serious delay" in providing them with training planes.

"As a result," the report says, "several hundred of the American cadets have been practically idle and have made no progress."

The minority report citing the arrangement with France for producing battle planes, said:

"As American aero squadrons reach the front ready for duty battle planes have been supplied them under this arrangement."

In producing combat planes at home—defining the term to include both offensive and defensive machines—the minority said about 25 plants are engaged, either on complete machines or parts.

Referring to difficulties of airplane production the minority declared:

"When war began the United States Government had purchased altogether less than 200 airplanes in its entire history, and probably not one factory was making over five or six a month. It is hardly possible to grasp the magnitude of the task the factories contracting 11,500 combat planes found before them." New plants had to be erected, the report said, new tools fashioned for delicate and complicated machines requiring 4000 parts and 2800 drawings—almost as many as for a battleship.

Investigation of aviation problems by President Wilson's special committee, headed by H. Snowden Marshall, still is in progress and a preliminary report from that body as to its findings in connection with organization of the aviation service has been called for by the War Department. It has been indicated at the department that action toward readjusting for the production of aircraft probably would be based on that report.

The publication of specific figures in the Senate Committee's report attracted considerable attention among army officers. Brigadier-General McIntyre, chief military censor, said he had not been consulted as to the advisability of making the disclosures.

There is a growing feeling about the War Department that a final settlement of the air program controversy must be reported very soon unless the efficiency of the personnel now in charge is to be impaired by the unrest and confusion created by constant agitation. Officers pointed, however, to the fact that the majority report itself shows better production figures are now coming forward as the program gets under way after much difficulty from whatever cause.

The Marshall committee's preliminary report is expected within a day or two. It has been intimated that a decision as to steps to be taken will be reached soon afterward.

The subject was brought up in the House to-day by Representative Caldwell, of New York, chairman of the military subcommittee on aviation, who defended the Signal Corps and declared the manufacturers of the United States have thought more of their country than they have of European money "and to-day we are manufacturing upward of 1000 airplanes every month and the production is increasing every day." He said that any unfulfilled promises regarding the program had not been made by army officers.—*Baltimore Sun*, 11/4.

MISCELLANEOUS NOTES

GERMAN TRAPS AND RUSES.—The Military Intelligence Section of the General Staff of the United States Army has compiled some valuable data on ruses and snares devised by the Germans, and used when retreating, and has also given the precautions to be observed to avoid them. We make the following extracts from the information furnished by the General Staff, which will be of interest to officers and men destined for service abroad.

Precautionary Measures.—As it takes some time to prepare these traps some of which, as at Roye and at Noyon, were laid in the fall of 1916, one must expect to find traps more especially in those localities where the enemy has voluntarily retreated, rather than in the places from which he was dislodged by an attack or rapid advance.

Until specialists have had a chance to investigate one must be very suspicious of the following: Shelters which are excessively well furnished or luxurious; shelters dug under roads or near paths; houses that seem miraculously to be left standing among ruins; all new works, recently constructed trenches; parts of equipment still in good condition left with others which have been worn; freshly turned soil; metal scraps; wood work of shelters and framework of galleries which do not look decayed; the favorite "souvenirs" of soldiers, such as rifles, bayonets, empty cartridge shells, projectiles, shields, helmets, left clearly in evidence as though purposely on the spot where found; frames moved from their regular places; articles stuck in the ground or walls, arms, shovels, grenades; suspicious objects, utensils scattered around trenches, shelters or saps; even the flooring of the firing steps which look lately repaired; new ballasting and refinished floors.

Even entrances to shelters which have been destroyed by an explosion, are not wholly safe, for mines may be concealed in the undamaged parts, behind the wreckage or in other intact entrances.

Stabling for horses should be thoroughly disinfected and only used cautiously after burning all the bedding, straw and oats left behind.

The following sign—"Use of this water is forbidden"—must be placed above all sources of water supply, until it has been analyzed by technical experts who guarantee it perfectly harmless. The expert designated will later state whether the water is "drinkable" or "dangerous."

The men charged with clearing out wells which have fallen in must be carefully equipped with safety ropes and gas masks so as to escape deleterious gas which might remain from the explosion and to climb out quickly in case of danger.

Listening tests will be made in buildings, galleries and subterranean chambers to make sure that there are no clock-work driven infernal machines.

Roads should be made the subject of painstaking inspection in order to detect mine galleries or fougasses prepared in view of their destruction.

Certain other precautions for testing springs and for the preliminary examination of suspected places are also considered effective.

Methods Used for Firing.—The traps work automatically or electrically, sometimes with a clock-work fuse or through a "silent" mechanism with a spring attachment which silently and slowly extends.

The mechanism may be released by walking over or leaning against an object; a board presses on a safety pin, which releases the spring of an igniter or primer firing pin causing it to strike a detonator.

The electrical arrangement is operated by pulling on a wire or by making contact walking over an object.

The "silent" mechanism is an automatic detonator containing an acid which releases a spring by eating through it.

One should therefore cut all suspicious looking threads, being careful not to sever those stretched tightly or taut ropes, which may be found among

slack telephone wires, for they may support weights which, once released, fall and strike detonators.

When cutting wires, one must take pains not to pull them, but simply separate the two ends which should be marked, when numerous, with the same sign, so as to permit the technicians to identify them when they search for explosive charges, which must be removed to avoid accidents.

Any observations or discoveries which may be made along these lines should immediately be reported to the general commanding the army (second bureau).

New Devices.—According to information from prisoners it appears that the Germans, in addition to the traps and ambushes above mentioned, have made preparations on a large scale for mining the trenches and shelters which they contemplate evacuating. The mines will explode when we have occupied the trenches and shelters.

Therefore, it is necessary, during the advance, to forbid the use of enemy trenches and shelters until it has been ascertained that they are not dangerous and hide no trap.

The first lines especially must not occupy enemy trenches, but should go beyond and build new trenches, in order to avoid all danger from explosions of mines laid by the enemy.—*Army and Navy Journal, 23/3.*

U. S. AND CANADA SETTLE FISHERIES DISPUTE.—Ottawa, March 12.—It is officially announced that the fisheries dispute between Canada and the United States has been settled at least for the duration of the war.—*Reuter.*

The dispute, which is more than a century old, centered round the necessity which Canadian fishing vessels from the fishing banks were under of putting into a Candian port in order to change their status from a fishing to a cargo-carrying one before entering an American port. In order to increase the food supply, it has now been agreed that the fishing vessels may enter and clear between American ports and the fishing banks directly.

USE OF WAR CAPTIVES IN U. S. CONSIDERED.—The State Department officials have begun serious consideration of the question of dealing with German prisoners who may be taken by the American Army in France. For the present there is plenty of work for them to do in France in preparing the American bases for the reception of troops now going abroad, and in railroad work and trench work behind the lines.

In all probability a goodly proportion of them will be employed in this work at all times, but it is still possible that a surplus will be available. At the present time the officials are carefully examining the subject with a view to bringing prisoners to this country to be employed in agricultural and other work suitable for military prisoners.

The investigation now going on also includes the question of the employment of alien residents in the United States who are officially registered as such.

There are all kinds and degrees of enemies among the registrants, including many who will become American citizens as soon as they can, and some of whom prefer allegiance to the United States at this time. Special permits have already been given many of the loyal men, and they are now at work.

Under international law those who decline to work for the government cannot be forced to do so, but their attitude may be tested by inviting them to do something helpful. Just what method of approach will be employed will be determined by the investigation.—*Baltimore Sun, 12/4.*

BRITISH LJUNGSTROM TURBINE INSTALLATION.—The first British Ljungstrom marine turbine installation has just been completed by the Brush Electrical Manufacturing Co., Loughborough, to the order of the British Ljungstrom Marine Turbine Co., Ltd. It is intended for a steamer building

for Chambers and Co., Liverpool, by Blumer and Co., Ltd., Sunderland. The vessel is of 6000 tons d. w., and the machinery consists of a Ljungstrom turbo-electric installation of 1750 equivalent indicated horsepower, capable of driving the vessel at 10 knots. There are two turbo-generators, each unit consisting of a Ljungstrom turbine with generator at each end, rotating in opposite directions at 3600 r. p. m., and generating 312 kw. three-phase alternating current at 650 volts, with a periodicity of 60 cycles per second. Each generator is mounted directly over the condenser, the condensing plant being on the contraflow kinetic system. Current from the generators is led to two synchronous motors running at about 720 r. p. m., with a slip of 0.8 and each of these drives the pinion of a double helical reduction gear, to the gear wheel of which is connected the propeller shaft, which rotates at about 75 r. p. m. The total electrical power of the installation is 4×312 kw., *i. e.*, 1248 kw., which is equivalent to a horsepower of about 1750. All the bearings of the generators, motors and gear, as well as the gearing itself, are lubricated under a pressure of about 10 pounds per square inch, and the air drawn through the cooling ducts of the high speed generators, at a temperature of about 100 degrees fahrenheit, is led direct to the furnaces, the partially-warmed air entering the pre-heaters fitted in the smoke-box in the usual way. All the auxiliaries are driven by electric motors, so that the whole of the machinery on the ship will be on the rotary principle. It is estimated that the steam consumption for all propelling purposes will work out at about 10 pounds per shaft horsepower, which is equivalent to a coal consumption of 1.07 pounds per shaft horsepower.—*Shipping*, 16/3.

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UNITED STATES

AMERICAN JOURNAL OF INTERNATIONAL LAW. **January.**—Share of the President in Declaration of War, by *Simeon E. Baldwin.* Treatment of Enemy Aliens, by *James W. Garner.* Jus Gentium and International Law, by *Gordon E. Sherman.* Violation of Treaties by Adverse National Action, by *Denys P. Myers.* The International Relations of Japan, China and United States (editorial), by *James Brown Scott.* Judicial Decisions Involving Questions of International Law.

ATLANTIC MONTHLY. **April.**—Only the Naval Reserve, by *Ralph E. Cropley.* The Mistaken Theory of the Allies, by *André Chéradame.* A Destroyer in Active Service, by an American Officer.

WORLD'S WORK. **April.**—Economy in the Grand Fleet, by *Lewis R. Freeman.*

REVIEW OF REVIEWS. **April.**—Our Navy in the War, by *Secretary Josephus Daniels.*

CENTURY MAGAZINE. **April.**—The Mood of an American Ship, by *Nelson Collins.*

SCIENTIFIC AMERICAN. **April.**—How Wireless Helps the Marines, by *Lieutenant R. A. Lavender,* U. S. N. Guns of the *Queen Elizabeth.* Unsinkable Ships, by *C. V. A. Eley.*

GREAT BRITAIN

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FORTNIGHTLY REVIEW. The Armies and the Nations, the Last Phase, by *Archibald Hurd.*

LAND AND WATER. **March 28.**—Submarine Campaign, by *Arthur Pollen.*

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NAVAL WAR NOTES

PREPARED BY

Lieutenant G. B. Keester, U. S. Navy

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STRATEGY

Big Sea Drive Urged at Washington Now.—Pressure for a naval offensive to supplement the costly battling on the west line is manifest anew in army and navy quarters. And there are those among the navy officials who predicted to-day that more aggressive sea action will come before July 1, though they did not venture to predict its magnitude.

Such as entertained this view pointed out that America has supplemented the British Navy with battleships, submarines, destroyers and, in fact, all types of naval craft. This, to their minds, was significant of a plan for more aggressive steps than simply warding off the submarines after they get out of their German nests.

While the advocates of an allied offensive are active, there are some indications too that the German Navy may take the first action in line with the policy of gambling everything on a victory this year. In some respects such an offensive might result more advantageously to the Allies than should the latter themselves attempt the aggressive, it was suggested.

One official, whose insight into naval affairs is recognized as especially keen, expressed the view that the allied navies would attempt a stroke at Zeebrugge, Wilhelmshaven or perhaps the Teuton stronghold, Helgoland.

"England," he declared "cannot afford to make a big gamble, however. She has kept the seas clear with her navy, and it is true that were it not for her powerful naval forces the German would now be on the seas. In such circumstances you can see that she cannot risk her vessels. But I do believe you can look for some action before July 1."

Acting Secretary of the Navy Roosevelt is known to be one of those who believes an aggressive rather than a defensive policy on the seas is desirable. He has the support of the younger set of navy officers, while a number of progressive army men say, too, that such a policy is needed now in the light of west-front developments.

Copyright Underwood & Underwood — Prepared for Attack from Aloft on French Destroyer.

Against this view is that of older navy men, who think that the chance is too great to take.

Yet the sending of big battle units indicates to many that a move other than merely protecting traffic against the U-boats is under contemplation, and it is deemed quite possible that at least a testing out of the German bases will be attempted.

Meantime, Germany is apparently trying to augment her own naval strength by getting Russian craft. All of the latter are powerful.—*Baltimore Evening Sun,* 10/4.

GREATEST ACTIVITY REIGNS AT GERMAN NAVAL BASES; GREAT RAID IS PREDICTED.—Geneva.—The greatest activity reigns at German naval bases, especially at Kiel. Coal and ammunition are being shipped to the fleet in large quantities, according to information received here this morning from a reliable neutral source.

German naval contingents, with heavy guns, were recalled recently from the western front to join the fleets and were replaced by Austrian artillery manned by land forces.

Indications are that a naval raid of great magnitude is about to be attempted.—*N. Y. Herald,* 13/4.

FUTURE DREADNOUGHTS.—Nothing has so far been accomplished to disturb the faith of the allied sea powers in the big gun and the big ship as the controlling instrumentalities of sea war. Despite the successes of a submarine warfare controlled by pirates who violate all the international agreements they had entered into and defy the laws of God and man, the civilized maritime nations still hold that if naval armaments are to be perpetuated the great armored vessels will maintain their predominance. It is safe to claim, then, that if the allied navies, three of which have had nearly four years' war experience, continue to build super-dreadnoughts the submarine has failed to prove its case.

Although her naval policy has not been indicated, something of Great Britain's intentions and her continuing practice must be known to the American officers in daily communication with the Admiralty, and if any radical change was imminent our policy would in some degree be governed by the information sent us. It is of official record, however, that instead of altering in any way our program of 1916 the Navy Department has recommended the completion of the battleships and battle-cruisers carried by it. It is known also that during the war Japan has confined her naval construction principally to "capital ships," and it is declared in Tokio that a new program to be introduced in 1921 will call for the building of 48 battle types, to be grouped in three squadrons, each with 16 units.—*New York Herald,* 8/4.

FUTURE OF BIG SHIPS.—There is little doubt that battleships and battle-cruisers are essential at present, yet the developments forseen by Admiral Aube, Mr. Gabriel Charmes and the "Jeune École" in France in the early eighties, as the result of the torpedo and torpedo-boat, are still in progress, and while it is easy to prophesy that future developments in the air and under the water will eventually sound the knell of the heavy fleets, it is very uncertain when it will occur; it would be folly to act upon it now, or that we can safely, as the French naval reformers advocated, scrap our big ships and devote ourselves to small fast vessels, submarines, and aeroplanes. I may add, in concluding this attempt at dealing with a very difficult subject, a warning that in naval matters it is seldom that any leap in the dark is immediately successful, and though foresight and prescience are always needed, common sense and experience are the only safe guides. To be wise after the event is the privilege of the writer and critic, myself included, but in condemning former Admiralties for lack of imagination we may remember that Admiral Aube's theories resulted in a suspension of ironclad ship-

building and the weakening for years of the French Navy, and that "the wisdom of our ancestors," so often referred to with little respect, as circumstances have changed, is sometimes found to be again of value under modern conditions. In proof of the above I may refer to two things: first, the successful reintroduction of the convoy system, which was supposed to be incompatible with modern trade requirements; and secondly, the value of the experience and seamanship of the sailor, untrained save in the exercise of his seamanlike qualities in navigating small vessels and fishing-boats, and his knowledge of the secrets of the sea.—*Admiral, United Service Magazine,* 18/3.

A REVIVED CAMPAIGN.—For a good many months past German attention has been so entirely concentrated upon the promised effects of submarine warfare as an instrument of "peace" that the real naval aims and ambitions of Germany have seldom been mentioned in the press. Now the naval propagandists are apparently trying to make the public regard the submarine warfare, not as a thing apart, but as one department of general naval warfare, and to revive public enthusiasm about the overthrow of British naval supremacy as one of the essential objects of the war.

The German Navy League, in spite of Count Hertling's speeches, is steadily insisting upon the importance of the coast of Flanders as the base for German operations against England in the next war. A new navy league circular says:

"It is along the coast of Flanders that the road passes to London, the heart of England and the only English port on the east coast which has hitherto hardly lost any of its importance because it cannot be put out of competition owing to its splendid docks and the density of the population. But the whole sea traffic through the Channel to the Thames is exposed to flank attack by our submarines on the coast of Flanders. It would not be impossible to send submarines from the German coast to the Channel, although they would have to overcome considerable difficulties. But it would be pretty hopeless to make a raid with destroyers, if our destroyers had to cover the whole course from the mouth of the Ems along the Dutch coast; they would be deprived of the possibility of effecting a surprise, and the prospect of success would be greatly diminished."

The navy league also explains that possession of the coast of Flanders is essential for future air raids on England. It says:

"It is obvious that our aircraft cannot do without the coast of Flanders for their attacks on England and also for their reconnaissances. Possession of the coast means an extension of the effective range of both our military and our air forces; our naval air forces simply cannot do without it."

In the *Vossische Zeitung* Captain Tägert, a well-known naval officer, sets out the new argument of the Naval Press Bureau—that unrestricted submarine warfare was begun because it was the only possible means of undermining British sea power. He justifies the false promises which were made by the German naval authorities a year ago by the simple assertion that, as unrestricted submarine warfare was a naval necessity, all excessive optimism which served to remove objections was beneficial! He argues at length that no military events on land could or can affect the ability of England to continue the war, and that it was of great importance to Germany to establish the unrestricted use of submarines, not only for the purposes of the present war, but also "in order to parry in the future any threat by England of a blockade."

Captain Tägert assumes, of course, that the submarine war will ultimately succeed, but it is very interesting to note his definition of the naval situation —unrestricted submarine war apart. He writes:

"England had closed the gates of the North Sea. From bases dominating all the important sea routes her cruisers swept the seas free of enemy ships. Invisible, secured against sudden invasion, and yet ready at any moment to strike a blow with overwhelming superiority, the English high sea fleets

lay waiting in their ports. Under their protection English sea trade followed the old, profitable roads. . . . . .

"If England's Allies collapsed militarily and economically, England could continue the war as a pure naval war, with almost the whole tonnage of the world at her disposal. If she succeeded, at the conclusion of peace, in forcing or persuading the Central Powers to limit their naval armaments, England's position of predominance in Europe was secure in the future as in the past. The economic harvest of the war could then be gathered in without interference. That was the situation which forced us to take up the decisive struggle against England's sea power.

"We could not produce a decision by throwing in our high sea forces. Even after a successful battle our fleet, without any bases, could neither blockade England nor keep the ocean open for our sea trade. In spite of numerous individual successes, our submarines found no opportunity for decisive action against our most invisible and most unreachable enemy."

Captain Tägert further admits that "occasional bombardments of the enemy coast" are ineffective, and that the much advertised excursions of German raiders are dangerous adventures, which are necessarily of brief duration.

The conclusion of the article is, in effect, that the submarine war has at least proved a powerful contributory cause of a comparatively favorable situation. Captain Tägert claims as a special result of the submarine war that "the masses of workers in England are getting uneasy and demanding from their government a moderation of its Imperialist war aims." Finally he exclaims:

"How much farther we should be from a decision of the war if the whole road leading to the success of the submarine war—which even now seems to many people to be too long—had still to be covered!"—*London Times*, 20/3.

LESSONS OF THE WAR

ALLIED CONVOY SYSTEM.—In its issue of January 19, the Amsterdam *Algemeen Handelsblad* prints an article, with accompanying diagram, from its Berlin correspondent describing how the Allies are convoying merchant vessels through the war zone. The article, freely translated, reads as follows:

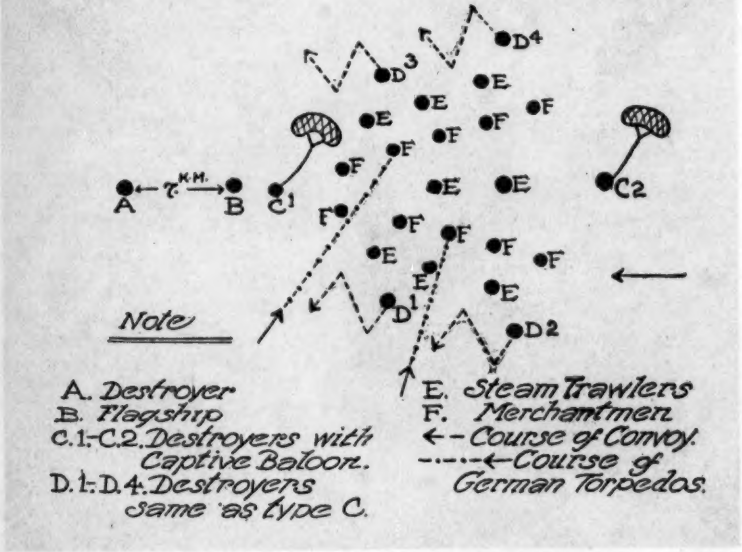
Various methods are in vogue for convoying transports and merchantmen. The order in which the escorting warships sail is determined by the importance, the size, the number, and other determining factors of the vessels convoyed. The plan hereinafter described is not always followed, but shows how the protecting naval units are distributed around a representative convoy of 10 merchantmen sailing between England and Norway.

Ten merchantmen, represented in the accompanying diagram by black dots, are placed *en echelon* midway between line abreast and line ahead formation. In line abreast ships would sail side by side; in line ahead they would sail one directly behind the other. It is plain that a line abreast formation would present an altogether too easy target for enemy torpedoes. On the other hand, a single file formation would be easiest for the captains of the merchant ships, because each commander would only have to follow directly behind the vessel preceding his. In such a case, however, the distance between any two ships must be at least 500 yards, and the length of the convoy would be such that its head and tail might lose sight of one another.

While the *echelon* offers the advantage of shortening the distance, it suffers from this drawback, that a torpedo might, after missing the *echelon* on the left, hit a ship in the right *echelon*. In front of the convoy and at least three or four nautical miles in advance of it, steams a modern destroyer *A*, which is provided with a submarine receiver, and which enables it to detect the sound of the screw of a submarine, inasmuch as the latter

differs in a marked degree from the sound made by the screw of an ordinary steamer.

Behind destroyer *A* follows the commander's ship *B*, which is either a small cruiser of an older type or a so-called submarine destroyer, and which directs the speed, course and formation of the convoy. After the commander's ship comes a torpedo-boat destroyer of an older class *C*1. To it is attached a captive balloon. Observers stationed in this are enabled to overlook the surface of the sea to a wide extent, and are also able to detect submarines to a considerable depth below the surface. At the rear of the convoy is another torpedo-boat destroyer *C*2, with a captive balloon likewise attached to it. The flanks of the convoy are protected by torpedo-boat destroyers of the *C* type, sailing in zigzag formation. Closer protection to the vessels of the convoy is afforded by the steam trawlers *E*. Some of these also steam in the center of the convoy between the two *echelons*.



While the procedure above described is not invariably followed, it indicates some of the difficulties at present incurred in bringing vessels safely into port. It also shows how hard it is to shoot one or more vessels out of a convoy without being detected.—*Nautical Gazette*, 21/3.

INGENIOUS WAYS OF DESTROYING U-BOATS.—These are not happy days for the U-boats. Not only is the prey more elusive than in the halcyon days of 1915 and 1916, when merchantmen were unarmed and without convoy, but the U-boats are being actually pursued and destroyed even when seeking the seclusion of the ocean depths. So the U-boat has come to be the pursued just as much as the pursuer; and months hence it may be almost entirely the pursued, if allied efforts are pushed still further; for we are told that the U-boats are now being destroyed as fast as they are constructed. When American destroyers and submarine chasers take to the seas in large numbers, when our building program in this direction is realized, then the doom of the U-boat will be effectively sealed.

Encounters with submarines are always interesting, especially if the censors permit them to be described in full. Recently, for instance, an

American steamer had a brush with a U-boat which resulted in the probable destruction of the latter. It appears that the crew of the steamer saw a torpedo coming toward them, but there was not time enough to stop or alter the course. Fortunately, however, the torpedo missed; and the master of the steamer, with rare presence of mind, ordered the course to be shifted so as to follow the wake of the torpedo. Having gone but a short distance along the foamy path left by the torpedo, the steamer suddenly came up to the U-boat which was then rising to the surface, as depicted in our cover illustration. The submarine tried to avoid the blow, since it was too late to submerge. But the steamer's wheel was shifted, and it crashed full tilt into the U-boat. The badly battered hull of the German raider was seen to sink rapidly after that.

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HOW THE FOUR TRAWLERS SUCCEEDED IN ENMESHING THE MINE-LAYING SUBMARINE.

A more interesting case is that recently described by a writer in the Liverpool *Journal of Commerce*, as follows:

"A seaplane had 'spotted' a submarine lying on the sea bed. Instantly, the observer's finger commenced to tap a key, and 10 miles away a long, lean destroyer and four squatty trawlers detached themselves from a pack of hounds working a covert and hastened to the kill. Meanwhile the seaplane circled around, but when the surface ships arrived, her instructions, delivered by wireless, were curt and precise. Acting upon them the trawlers stationed themselves at the four corners of a wet quadrangle, while the destroyer kept her guns ready to talk to the enemy should he appear above the surface.

"The trawlers at the corners of the quadrangle got out their sweeps—long wire hawsers of an incredible stoutness, with a heavy 'kite' in the

center to keep their bights down on the sea bed—and commenced to steam toward each other. As the pairs of vessels met, their wires simultaneously engaged themselves under the U-boat's bow and stern, and commenced to work their sinuous way between her hull and the sea bottom.

"Then the strange thing happened. Two round, black objects seemed to detach themselves from her hull and float surfaceward, to hover a second and then to commence bobbing down the tide—bobbing down a lane much frequented by those ships that brought food, munitions of war and hundreds of other things to England's shore.

"'Mine-layer, eh?' called the seaplane's observer.

"'That's it, lad,' came the telephoned answer, 'but her eggs can wait for a minute.'

"The trawlers now crossed their dependent cables and thus held the U-boat in a kind of cat's cradle. She seemed suddenly to wake up to her danger, for with a bound she tried to disengage herself from the meshes which held her. But it was no use; the trawlers had been too long at the game to leave any loopholes and the submarine was doomed.

"'Got him,' signalled the seaplane.

"'Thanks,' replied the destroyer. 'We'll give him five minutes to come up and breathe, but no longer.' That time passed but still the submarine made no further move.

"At a flagged signal from the destroyer the port foremost trawler and the starboard after one clipped a small red tin of high explosive to the bar-taught wire, and allowed it to slide down till it touched the U-boat's hull. It was the seaplane's turn to wave a flag, and immediately there followed the crashing of two fists upon two firing keys; the uprising of two gray mounds of water and a rumbling, muffled explosion.

"The seaplane circled twice above the patch of rising oil, ascertained that the German had been destroyed and notified the destroyer of the fact. Then, with her observer slipping a drum of cartridges into his machine gun, she sped on after those objects bobbing down the tide. A burst of rapid firing, and the first of the devil's eggs, its buoyancy chamber punctured, sank with a gurgle; the second gave a better show, for it exploded grandly and harmlessly as the bullets reached it."—*Scientific American*, 30/3.

SUBMARINES PLAY HIDE AND SEEK.—Hunting submarines in the northern regions seems to be attended with considerably more difficulty and danger than in the lower latitudes, according to an article recently contributed on the work of the British Navy in the Arctic. It says: "Submarines hide themselves among the ice floes and many are the exciting games of hide and seek played in those still waters, with only the seals and grampus for witnesses. Fogs, both in summer and winter, are a very terrible thing in these Artic waters. The cold wind, blowing on the warmer water, raises an impenetrable mist, and probably causes as many losses as the enemy's best efforts. And the sun, which does not set for months in the summer, gives an unfair advantage to underwater craft. With conning-tower awash and approaching a surface speed of 16 knots, they are very difficult to detect in all but the calmest weather."—*Marine Journal*, 23/3.

ZIGZAGGING AT SEA.—Zigzagging by commanders of vessels to elude attacks by submarines has a protective value which it did not possess before merchant ships were armed. Now that the tramp is apt to carry a rapid-fire gun of from 3 to 6-inch caliber, the U-boat once it has come within the effective range of the gun, must stay below. In the old days a submarine with 14 to 17 knots speed did not hesitate to run down its prey on the surface, and a large proportion of the victims were sunk by gun-fire. But when a merchant ship begins to mount powerful guns, with navy-trained gunners behind them, the sinking, even of slow tramps, became a very difficult and hazardous task.

On sighting an approaching ship the submarine heads to intercept her course, submerges, and then takes an occasional look at her, bringing her periscope above the water for a few seconds only. The U-boat commander estimates the speed and course of the ship, submerges and lays his own course by compass while below so as to bring his boat within torpedo range, preferably forward of the beam.

Now, if while the submarine is below the merchant ship changes her course, say, through an angle of 45 degrees, the former, on coming up for a few seconds' look at the ship, finds that, instead of coverging to meet him, the merchant ship is sailing in a direction entirely different from that on which his calculations were based; his maneuver for getting into firing position goes for nothing, and he has to try again. Unless he is satisfied that his guns can greatly outrange the enemy, the U-boat commander does not dare to use his surface speed, and below the surface he has not sufficient speed to overhaul the merchant ship. One or two misjudgments of this kind will lose so much time that the ship will have a good chance to pass him and steam beyond torpedo range.—*Washington Evening Star*, 24/3.

ATLANTIC

EXPLOSION ON U. S. S. "MANLEY."—The Navy Department has received dispatches from Vice Admiral Sims, U. S. N., commanding the American naval forces in European waters, stating that the U. S. destroyer *Manley* collided with a British man-of-war on March 19. A depth charge on the *Manley* exploded, damaging both vessels, killing one officer and three enlisted men and injuring a number of others.

Lieut. Commander Richard McCall Elliott, Jr., executive officer, was killed.

Lieut. Commander Elliott was born in Philadelphia, Pa., on April 12, 1888, and entered the service under an appointment as a midshipman from the eighth congressional district of Pennsylvania, August 17, 1905; was appointed an ensign June 5, 1911; promoted to lieutenant (junior grade) June 5, 1914; lieutenant, June 5, 1917; temporarily appointed a lieutenant commander from February 1, 1918, while serving on the U. S. S. *Manley*. In the spring of 1915 he distinguished himself for bravery when a forward boiler blew up on the *Alwyn* off Cape Hatteras. Lieutenant Elliott was then serving as torpedo officer, and did fine work in the rescue of men at night during a heavy sea, entering the boiler-room and assisting in bringing out the injured. He later served on the destroyer *McDougal* and at the torpedo factory at Newport.—*Army and Navy Journal*, 23/3.

ADDITIONAL DEAD, MISSING, AND UNIDENTIFIED ON U. S. S. "MANLEY."—Admiral Sims cables to the Navy Department that the latest reports on the casualties in the crew of the U. S. S. *Manley* are as follows:

One officer dead; 14 enlisted men dead, identified; two enlisted men dead, not identified; 17 missing; six seriously injured; 16 slightly injured. Nine officers and 55 enlisted men escaped without injury.—*Official Bulletin*, 26/3.

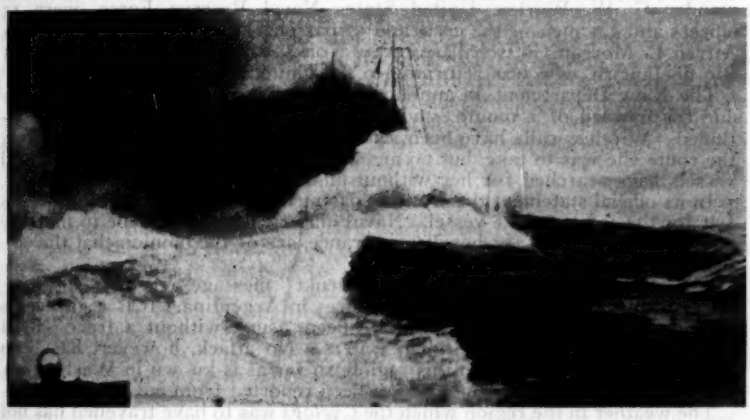
U. S. PATROL VESSEL SINKS.—The Navy Department announced on March 26 that the U. S. S. *Admiral*, scout patrol vessel No. 967, ran on the rocks of Scituate, Mass., March 25, and is a total loss. All the officers and crew were saved and considerable small material was taken off the vessel. The *Admiral* was a converted yacht, which, before being taken over by the navy, belonged to Gordon Dexter, of Boston.—*Army and Navy Journal*, 30/3.

U. S. S. "VESUVIUS" GOES AGROUND.—While making her way out of the harbor early on March 27 the U. S. S. *Vesuvius* ran ashore near Lovell's Island in Boston harbor. Signals for assistance were sent out and she was

pulled off and taken to the Boston Navy Yard to see if she had sustained any damage. The ship had left the navy yard after having been drydocked and cleaned.—*Army and Navy Journal*, 30/3.

ATTEMPT TO SALVAGE "ADMIRAL."—An attempt is to be made to salvage the *Admiral*, one of the boats attached to the first naval district, which sank in 15 fathoms of water off Plymouth on March 26. The *Admiral* is of about 110 tons. The work of salvaging was started on March 28 under the direction of an officer from the Boston Navy Yard.

Eight days will be required to repair the damage to the U. S. S. *Vesuvius*, which ran ashore near Lovell's Island on March 26. Some of the bottom plates have buckled and rivets have been torn away. The ship is now in dry dock at the Boston Navy Yard and the repair work will be rushed.—*Army and Navy Journal*, 6/4.



MARINE VIEW OF MAST OF SHIP "WIRELESS."

U. S. DESTROYERS SINK TWO U-BOATS.—Two more German submarines have, it seems certain, been sent to the bottom to stay there for good by two U. S. destroyers, according to an unofficial account printed in London on March 30. The first destroyer after the submarine submerged could see her wake, which showed it was running from starboard to port. As the submarine passed under the stern of the destroyer the latter dropped a depth charge and large quantities of oil came to the surface, which proved that the submarine had been ripped open. The second destroyer, engaged in night convoy duty, sighted a submarine a mile away, by the light of the moon. The submarine dived while the American destroyer was still a few hundred yards distant. Two depth charges were dropped and oil came to the surface. This submarine was apparently lying in wait for another convoy, which was approaching from an opposite direction.—*Army and Navy Journal*, 6/4.

"MANLEY" REACHES PORT.—London, March 21.—The United States destroyer *Manley*, on which an officer and some of the men were killed as a result of a collision, has arrived at a British port, according to an Associated Press dispatch received to-night.

An Irish Port, March 22.—The bodies of three men from the United States destroyer *Manley* have been brought here to be embalmed for removal to America.

Fire broke out in the afterpart of the *Manley* and the depth charge kept there was immediately thrown overboard in the hope that the vessel would steam clear. The explosion, however, blew off the afterpart of the vessel. Several survivors were landed and are now in a hospital.—*Washington Evening Star, 22/3.*

BIG WAR SUPPLY SHIP VANISHES WITHOUT TRACE.—The naval collier *Cyclops,* 19,000 tons, with 293 persons aboard, has been overdue at an Atlantic port since March 13 and has virtually been given up as lost by the Navy Department.

The disappearance of the vessel, which last reported at a West Indian port on March 4, probably will prove to be not only one of the most serious naval disasters suffered by the United States during the present war, but remain one of the unsolved mysteries of the sea.

On board the vessel, which was under the command of Lieutenant Commander G. W. Worley, United States Naval Reserve Force, were 15 officers and 221 men of the crew and 57 passengers. Among the latter was Alfred L. Morean Gottschalk, of New York, American Consul General at Rio de Janeiro, who was returning to the United States.

The Navy Department, in announcing to-day the *Cyclops* had been overdue for upward of a month, said that the search for her was being continued. Wireless calls have been sent out from every possible point along the route she was to take, but no answering call has been received. Naval vessels have searched for her without finding a trace.

In its official statement the Navy Department says that extreme anxiety is felt for the safety of the vessel. Naval officers, who are unable to find any adequate explanation for her disappearance, are of the opinion that the collier has been sent to the bottom.

The mystery recalls the "spurlos versenkt" message of Count von Luxburg, formerly German chargé d' Affaires in Argentina. It is regarded as possible that the *Cyclops* might have been "sunk without a trace" by a U-boat operating in West Indian waters. No attack, however, has been made on any other vessel in this region, so far as is known in Washington. The presence of a submarine has not been reported from any source.

The weather in the region which the *Cyclops* was to have travelled has not been unusually stormy. The theory that the collier was sunk by an internal explosion is also scouted by naval officers. The explosives carried in her magazines were not sufficient to sink her before wireless calls could be sent out, and it is improbable that sufficiently powerful bombs could have been placed in her hold by enemy agents to destroy her without a trace.

One of the two engines of the *Cyclops* was damaged and she was running at reduced speed with the other engine compounded, but even if totally disabled the ship could have used storage batteries to send out radio calls for help.

Concerning the disappearance of the vessel the Navy Department to-day issued the following statement:

"The U. S. *Cyclops,* navy collier of 19,000 tons displacement, loaded with a cargo of manganese, and with a personnel on board of 15 officers and 231 men of the crew, and 57 passengers, is overdue at an Atlantic port since March 13. She last reported at one of the West Indian islands, on March 4, and since her departure from that port no trace of her nor any information concerning her has been obtained. Radio calls to the *Cyclops* from all possible points have been made and vessels sent to search for her along her probable route and areas in which she might be, with no success.

"No well founded reason can be given to explain the *Cyclops'* being overdue, as no radio communication with or trace of her has been had since leaving the West Indian port. The weather in the area in which the vessel must have passed has not been bad and could hardly have given the *Cyclops* trouble. While a raider or submarine could be responsible for her loss,

there have been no reports that would indicate the presence of either in the locality in which the *Cyclops* was.

"It was known that one of the two engines of the *Cyclops* was injured and that she was proceeding at a reduced speed with one engine compounded. This fact would have no effect on her ability to communicate by radio, for even if her main engines were totally disabled, the ship would still be capable of using her radio plant.

"The search for the *Cyclops* still continues, but the Navy Department feels extremely anxious as to her safety."

The *Cyclops* was built at the shipyard of William Cramp and Sons, Philadelphia. The keel was laid on June 2, 1909; she was launched May 7, 1910, and was commissioned November 7, 1910. She had a displacement of 19,000 tons. Her length over all was 542 feet, beam 65 feet, mean draft, loaded, 27 feet 8 inches, and cost $923,000.

For many days the naval authorities have clung to the hope that the ship would be found or that information would be picked up indicating how she met her fate, but to no avail. The sea has been swept by wireless calls and naval vessels have searched carefully for traces of her but the mystery of her disappearance has remained unfathomed.

Naval officers admit, that the collier might have been attacked by a submarine or a sea raider, but the theory is all but disapproved by the fact that neither a submarine nor a raider has been seen in these waters. In either event the radio apparatus could have been used unless the ship were taken entirely unawares and it had been disabled before calls could have been sent out. The same would have been true had the *Cyclops* struck a mine carried far from its moorings.

The route the *Cyclops* would have taken after leaving the West Indies was one of the ocean lanes of travel where steamships are frequently within sight and seldom more than 50 miles away at any point. It is quite improbable that any call the *Cyclops* might have sent out would not have been picked up by a passing vessel.

The theory of an internal explosion is also discredited. There were small magazines on the *Cyclops,* one forward and the other aft. In neither was there a large quantity of ammunition. Naval officers, some of whom hold that a magazine explosion offers the most reasonable explanation for the disappearance of the vessel, are mostly of the opinion that it would have remained afloat long enough to send out distress signals. It is also doubted that a sufficient quantity of explosives could have been placed in the cargo to sink the vessel at once.—*N. Y. Herald,* 15/4.

MONROVIA BOMBARDED.—Washington, April 12.—A German submarine of the largest seagoing type appeared April 10 in the Port of Monrovia, the capital of Liberia, on the west coast of Africa and bombarded the wireless and cable stations there, the State Department has been informed in an official dispatch.

The submarine threw scores of shells from her deck guns into the wireless station, causing extensive damage. She had just turned her attention to the cable offices when a steamer was sighted passing the harbor mouth. The submarine left in chase and did not return.

Liberia is a negro republic with a population of between one and two millions. It declared war on Germany August 4, 1917. Relations had been broken previously, but the war declaration permitted the internment of many German merchants and others who had been accused of unneutral activities.

The information reaching the State Department came from Robert C. Bundy, in charge of the American legation at Monrovia. The first message he sent indicated his belief that the submarine would have no difficulty in completing her object of utterly destroying all means of communication with the outside world. A later message told of the sudden departure of the U-boat.

About six weeks ago the captain of an American merchantman reported to the Navy Department having sighted a similar boat in the South Atlantic.—*Baltimore Sun*, 13/4.

U-BOAT AT MONROVIA KILLED THREE CHILDREN.—Washington, D. C.—Three children were killed when the German submarine bombarded the port of Monrovia, capital of Liberia, on April 10, the State Department was advised in a report to-day from Mr. Bundy, the American Chargé. Three persons were injured. The bombardment followed a demand upon the Liberian Government that it destroy the French wireless station at Monrovia.—*N. Y. Herald*, 17/4.

LOSS OF "CYCLOPS" REMAINS MYSTERY.—Washington, April 16.—Disappearance of the navy collier *Cyclops*, with about 300 aboard, promised to-day to go down in the annals of the sea as one of the strangest mysteries ever known.

The navy, though still searching the tropic seas, has virtually abandoned all but the one-millionth hope of finding her or any traces of her crew. The strange engulfing of the ship in the waste of waters lent itself to many romantic tales of plots to wreck her, but thus far Captain Wells' intelligence officers have been unable to establish the truthfulness of any of the stories.

A complete tabulation of intelligence reports from all corners of the world seemed to dissipate the theory that a German raider or submarine had again slunk into the western Atlantic.

So to-day many here turned more to the theory that plotters within wrecked the engines, put out of commission the wireless and somehow spirited the ship away to some out-of-the-way port or scuttled her en route to home port.—*Baltimore Evening Sun*, 16/4.

PROTECTED AGAINST ORE GAS.—Manganese ore, with which the *Cyclops* was heavily laden, might under certain conditions give off an extremely dangerous gas. Precautions had been taken against this, however, on all ships engaged in the manganese carrying trade.—*N. Y. Herald*, 17/4.

FEAR THE "CYCLOPS" MAY BE VICTIM OF GERMAN TRICKERY.—The suspicion that the naval collier *Cyclops* may still be afloat, although overdue for more than a month, is leading to a renewal of the search for her by French and American ships with greater vigor than ever. Fast scouts have been sent out to look for her, and the area which they will cover will probably be extended beyond the vicinity of the route the missing vessel was to have taken on her way from Barbadoes to the United States.

The fact that no trace of wreckage has yet been found is regarded as an ominous sign by naval officers. If the *Cyclops* had been sunk by a torpedo, time bombs placed in the hold or engulfed by a hurricane it is probable that the life-rafts with which she was equipped would have remained afloat as well as her boats.

Nothing has yet been found to prove that the collier was sunk. Neither has any satisfactory theory been advanced to account for her disappearance. No distress call was sent out, and it would be only by chance that her radio equipment would have been put out of commission.

For these reasons the suspicion that the ship might have been captured through the machination of German agents is growing. Through a conspiracy mutineers might have obtained control of the vessel, but it is not regarded as probable that she would undertake a transatlantic voyage, because, so far as known in Washington, there was not sufficient coal in her bunkers.—*N. Y. Herald*, 17/4.

OUR SUBMARINES OFF GERMAN BASES.—Washington, April 9.—In the face of bitter winter gales, American submarines, primarily designed for opera-

tions off the home coasts, have crossed the Atlantic to engage in the common fight against German U-boats. They are now aiding allied naval forces, as are American destroyers and American naval airmen, and they have been in the war zone for some months.

Secretary Daniels revealed the fact that the submarines had gone "over there" in his address at Cleveland, Saturday at a Liberty Loan celebration, but gave no details. It is now possible, however, to tell for the first time of the mid-winter passage of the boats across the seas in the face of the most severe weather known in years. In the perilous passages, the best traditions of the service have been maintained.

The first submarines to leave got under way in early winter. Arrangements for the trip were made without a hint appearing in the papers, and, in fact, until Secretary Daniels spoke, no word of the participation of the underwater boats in the war against Germany had been published.

The navy had some experience with long-distance work with submarines on which to draw. Boats have been sent to the Philippines, to Hawaii, and to Panama, but always in mild seasons of the year and with plenty of time for precautionary steps.

This time, however, they were to go in winter, and a terrible winter at that, with the Atlantic in its ugliest mood. The steps taken to get them across cannot be disclosed. But the fact that the department has no disaster to record is pointed to as proof of their sufficiency.

Officers and men of the submarines faced hard days as they put out. Cramped in narrow quarters and with storms in prospect they steered to sea with complete confidence in themselves and their boats. A laconic report of uneventful voyages bore out that confidence.

In mid-December others got started. While it was fair on sailing day, ahead of the submarines a 100-mile gale was brewing. Into it they plowed, rolling and tumbling. Details of the commander's report have not been made public, but among the crews undoubtedly were men who recalled the first employment of the submarines at maneuvers, when seasickness all but put the flotilla out of commission.

But there was no faltering. The boats were going to the front in real warfare this time. Even when tow-lines parted in some cases, unknown to the tugs and accompanying craft, the submarines battled forward alone. A majority of them reached their destination under their own power, ready for duty.

Some of the boats were driven far from their course. They showed up at different ports, but promptly put to sea again and reached their station.

One boat was the hard-luck vessel of the lot. Separated from the flotilla in the first storm and its compasses out of order, it turned homeward, only to strike two more gales in quick succession. However, it made port successfully and undamaged. With new fuel and supplies aboard and with a man or two, worn out by the long struggle with the elements, replaced, in a few days the boat put to sea again. It went through that time, despite a fourth gale it encountered.

Little has been said of the work of the British and French submarines in the U-boat hunt. They are playing a definite part, however, and lurking close to enemy bases. There have been encounters between submarines, some of which read like fiction. The service has been described as a trying one, for which men of courage and daring are needed. It is in this work, presumably, that the American submarines are engaged.—*N. Y. Times*, 10/4.

ONE HUNDRED AND FIFTY U. S. WARSHIPS FIGHTING SUBMARINES.—Cleveland, April 6.—A great fleet of American warships, numbering more than 150 vessels, and including, in addition to the far-famed destroyers, battleships, cruisers, submarines, gunboats, coast guard cutters, converted yachts, tugs and other auxiliaries, is operating in the war zone.

Manning this fleet and the many small submarine chasers, which are not reckoned in the total, and doing duty on air patrol and at the supply stations ashore, are 35,000 officers and men, half the navy's personnel when the nation entered the war just a year ago.

These hitherto carefully guarded facts were disclosed here to-day by Secretary Daniels in an address at a celebration marking the opening of the third Liberty Loan campaign. Mr. Daniels said that while he was not at liberty to tell the toll the fleet has taken of German submarines, the nation could "rest assured that our forces have inflicted losses upon the enemy."

"As an instance of naval activity," said the Secretary, "I may cite the work of one detachment of destroyers for a six-month period: Total miles steamed in war areas, 1,000,000; submarines attacked, 81; single vessels escorted, 717; convoys escorted, 86; total number of days at sea, 3600.

"The navy has furnished every aid possible that the countries aligned with us in the war have requested or suggested and has worked in the closest co-operation with them. Our forces have played an important part in the war against the submarines and have aided materially in the marked reduction in sinkings of merchantmen, as compared with the number sunk in the corresponding period a year ago, and in a no less notable increase in the number of submarines destroyed."

Under Vice Admiral Sims, who is in supreme command of all the American naval forces in the war zone, are four rear admirals, with stations in Europe, said the Secretary. They are Henry B. Wilson, in France; Albert T. Niblack, in the South; Hugh Rodman, in command of battleships; and Herbert O. Dunn, on special duty.

America's fighting ships, Mr. Daniels asserted, have been self-sustaining, with the assistance of repair ships, except for major repairs and docking. Schools and barracks have been established to house the men, who, when trained, go aboard ship, relieving nucleus crews of men of long service who are sent home to bring out new units. Commanding officers trained in the war zone are returned to America to take new vessels into the war zone.

Torpedo stations and aviation bases also have been established abroad, and the Secretary announced that American Navy aviators are co-operating with those of England, France, Italy and Portugal.—*Baltimore Sun*, 7/4.

PORTUGAL FOR U. S. BASE ON AZORES.—Washington, April 12.—For the protection of the Atlantic trade routes to southern Europe, the United States, with the consent of Portugal has established a naval base on the Azores Islands.

Guns have been landed to begin fortification of the station which in addition to being used as a naval base for American submarines, destroyers and other small craft, also will serve as an important homing station for American airplanes, a number of which already have been assembled there.

Negotiations now are in progress between the State Department and the Portuguese Government to insure full co-operation between American naval forces and the local authorities of Portugal on the islands for the adequate defence of the station. This action will simplify the task of protecting the great trade routes not only to southern Europe and the Mediterranean, but also returning traffic to South America and southern Gulf ports in the United States.

Portugal was not only willing to enter into the arrangement, but was eager to see it perfected that her own lines of communication to her colonial possessions would be covered. The value of the new station as a base for the replenishment of supplies for American submarines, submarine chasers and destroyers on the voyage to Europe already has been demonstrated.

It is permissible to disclose these facts now because it is known to the government that they are known in Germany.

The Azores, a constituent part of Portugal, lies in the Atlantic about 750 miles west of Gibraltar and 1400 miles east of New York. Many of the islands are uninhabited, and since the German unrestricted submarine warfare began there have been several reports that one of the islands had been used as a submarine base by the Germans. Numbers of vessels have been sunk by submarines in the vicinity of the Azores.

The chief ports on the islands are Horta, on Fayal Island, and Ponta Delgada, on Sao Miguel Island. Horta is frequently used by vessels running short of coal and supplies, and is the stopping place of some vessels trading between the Mediterranean and the United States, as well as steamers trading between Europe and South American and South African ports.

The Azores are the landing place of the only cable line which connected Germany directly with the United States before the war. Shortly after hostilities began this cable was cut, presumably in the English Channel, through which it runs, thereby stopping messages between New York and Emden, Germany. There are four wireless stations on the islands.—*Baltimore Star*, 12/4.

AZORES NAVAL BASE STORY DENIED.—The naval authorities make no concealment of their displeasure over the announcement that this country, "with the consent of Portugal, has established a naval base on the Azores Islands." As a matter of fact there is no justification for any such statement. This country, in common with France and Great Britain, is making use of harbors for the relief and supply of American ships on duty in foreign waters. Beyond this, nothing has been done and nothing is in contemplation, it is stated at the Navy Department. A similar announcement was made a short time ago in Germany and it is now stated that it is on the strength of this German knowledge of our purpose the present revelation is permissible. The facilities which exist in the Azores will be availed of without the formality of creating a permanent base.—*Army and Navy Register*, 13/4.

U-BOAT SUNK, NINE OF CREW TAKEN ALIVE BY AMERICAN TRADE SHIP.—The first report of the capture alive of German submarine prisoners by the crew of an American merchant vessel was brought to an Atlantic port by passengers arriving on board a French steamship. They told that nine prisoners had been taken and the American steamship also succeeded in sinking the undersea raider, that went down with a suicide captain.

The encounter between the American steamship and the submarine occurred on March 10, when the former was only two days away from a French port, it was said. W. S. Hambling, connected with the Ordnance Department, U. S. Army, and one of the returning voyagers, told of the capture. His report was corroborated by two other passengers. The steamship which sunk the U-boat was under charter to the United States Shiping Board and was formerly of the American-Hawaiian line.

"I saw the nine prisoners march down the gang-plank at the French port," said Mr. Hambling. "I then heard the story, which was that the steamship was two days out of the port when it had a running fight with the submarine. The nine prisoners were the only survivors picked up. When the submarine captain saw his boat was about to be lost he shot himself dead." —*N. Y. Herald*, 25/3.

MERCHANT SHIP GUNNERS SINK THREE U-BOATS.—Liverpool, March 8.—Three Liverpool steamships have sunk three German submarines in the Atlantic recently and it is now permitted to relate the circumstances.

In the first instance, a Liverpool steamship was fired upon by a submarine in the Atlantic at daybreak. The steamer paid no heed to the shots and kept on her course. The submarine followed cautiously along the surface, keep-

ing up a long-range bombardment for an hour and a half. Suddenly the ship slowed down and the boats were lowered, apparently indicating that the captain had received all the punishment he wanted and was abandoning his ship. The submarine commander, fearful of a trap, circled around the ship several times and then came closer to the vessel.

The last act came very swiftly. There was a sharp sound of falling timbers as a false side dropped away, and then six explosions as a gun spoke six times. Four of the shots hit the mark, destroying the conning-tower and disabling the German gun. The submarine's bow rose high in the air and then slipped down into the water, like a gigantic dart.

A second Liverpool steamship was outward bound at a speed of 8 knots when a torpedo passed 20 feet astern. As the vessel was turned a second torpedo missed her bow. The guilty periscope was observed a quarter of a mile away and the gun crew began firing. The first shot went too high, but the second and third exploded on hitting the enemy, which disappeared amid a great pool of bubbles and oil.

A sailing ship accounted for the third submarine. The ship was fired upon by a U-boat just before noon. As the German came within range his fire was answered, the sailing vessel firing 13 shots. The chief gunner was a former petty officer in the British Navy and he scored eight bull's-eyes in a space of less than two minutes. His report says:

"The bows of the submarine disappeared and the stern rose clear out of the water. She remained in this position for about 15 seconds and then disappeared. A minute later the stern and rudder came up again, and remained steady above the water, at an angle of 30 degrees, for a few seconds, before passing finally from view."—*Washington Evening Star*, 28/3.

THREE U-BOATS SUNK BY OUR DESTROYERS.—London, March 30.—Three encounters in which American destroyers sank German submarines, are described in a series of accounts of successful submarine battles published recently.

"The first American destroyer," says the article, "sighted the enemy submarine on the port bow and proceeded at full speed in the direction of the enemy, who submerged. The American officers could see the enemy's wake, which showed he was running underneath the surface from starboard to port. As the German passed under the stern of the American boat the latter dropped a depth charge. The wake which had been plainly visible on the starboard never appeared on the port side of the destroyer. Instead, large quantities of oil came to the surface.

"A second American destroyer, engaged in night convoy duty, sighted an object a mile away by the light of the moon. Full speed was ordered, but the submarine dived while the American destroyer was still a few hundred yards distant. Two depth charges were dropped and oil came to the surface. This submarine was apparently lying in wait for another convoy which was approaching from an opposite direction."—*N. Y. Times*, 31/3.

SHIPS IN FLAME BLAST.—An Atlantic Port, April 17.—Thirty-seven lives were lost when the American steamship *O. B. Jennings* and the British steamer *War Knight*, both laden with naphtha and inflammable oils collided off the British coast on March 24, according to members of the crew of the *Jennings*, who arrived here to-day. All who perished with one exception were on the British vessel. They were burned to death by blazing gas and oil. Those who survived were rescued in the nick of time by destroyers, for soon after, while the blazing *War Knight* was being towed toward shallow water, it struck a mine and was blown up.

The destroyers went to the rescue through a field of blazing oil and took off also the crew of the *Jennings*. A number of the crew of the American ship, however, were badly burned and had to be removed to hospitals after being landed.

An officer of the *Jennings*, who told the story, supported in his statements by members of the crew, said the collision occurred shortly after 2 a. m., when they were within 15 miles of their destination. He added that it was caused by the necessity of running without lights owing to submarine danger.

"We had had an exceptionally rough trip," the officer said. "As a result the churning of the bulk oil we carried had caused a tremendous amount of gas. When the *War Knight* hit us there was an instant explosion, caused, no doubt, by a spark from the impact of the steel setting the gas on fire.

"Immediately there was a roar of flame spouting out of the hole in the *O. B. Jennings*' side which all but enveloped the Britisher. I learned afterward that 36 of her crew of about 50 were on the deck at the time and they must have been almost instantly incinerated.

"We drifted apart and one of the destroyers by which we were convoyed managed to get a line on her and was towing her toward the beach when in some manner the burning ship drifted onto a mine-field and she blew up. The case oil with which she was loaded took fire and completed her destruction.

"We had our own safety to look after. The burning naphtha had poured out onto the sea and it would have been folly to launch life-boats. It was then that the destroyers showed their resourcefulness for they dashed through the burning oil, bumped alongside of us and we jumped to their decks in safety. We lost only one man, a seaman named Shea, who was either burned or fell overboard and drowned.

"The *O. B. Jennings* being a menace to other ships the destroyers proceeded to sink her, which they did with a number of shots. She settled until her decks were level with the water, extinguishing the flames, and afterward she was taken in tow and beached. She probably is not a total loss."—*Baltimore Sun*, 18/4.

PROWLING U-BOAT SUNK BY GUNNERS IN THREE MINUTES.—Just how American gunners deal with submarines which cross their path in traversing the Atlantic was described yesterday by one of the men who had to do with the sinking of a U-boat three minutes after it showed its steel eye above the water off the coast of France on April 4. The sinking of this U-boat was announced exclusively in the *Herald* yesterday.

Three minutes, this seaman thinks, is ample to get the best of the biggest submarine if weather conditions are such as to make target practice possible. The marksmanship of Uncle Sam's gunners is excellent, he said, and even so small a target as a periscope, if within torpedo range, is sufficient to prove their skill.

This particular transport was one of a fleet of five ships that left France March 24 for the return trip to America. After waiting several days for an escort, the fleet finally started across the ocean in convoy of several American destroyers. Two days of uneventful travelling convinced the commander of the convoy fleet that their services would not be required and they turned toward more active waters.

"We were all anxious to get a crack at one of those U-boats," said the seaman. "We knew it was up to us now that the convoy was gone, and we redoubled our efforts to get a slant at one of them. Each vessel hoped that the distinction of being the first to sight one would belong to it.

"It wasn't long before the opportunity came. At least one 'sub' had been following us all along, just waiting for this chance to get a shot at us. The last of the destroyers had hardly passed out of sight when the officer on the bridge of our troop-ship saw something in the water and turned his glass on it.

"Sure enough it was a periscope. She was coming up out of the water fast and evidently ready to go into action. But we were just as ready as Fritz was. The U-boat was fully 1000 yards away on the port side.

"The officer had to act quick, but he was ready for it. He gave his orders to steer straight for the periscope, giving the narrowest target and giving Fritz the scare of his life at the same time. At the same moment, the officers ordered the gunners to open fire.

"Two minutes later a shot hit the water not far from the periscope. Two more shots were fired. Both went wild, because we were still turning.

"The other transports fell back, leaving us a clear field. It was Fritz and us. Everybody on board was impressed into service carrying ammunition up from below. We didn't know how long the fight might last and we were ready to carry it to a finish. We knew that the destroyers weren't far away, but we were ready for anything that might happen.

"Then the boys got in their fourth shot. It was the first one they had fired with the ship actually sailing straight, so that they could take aim. It was some shot!

"We heard the bark of the gun, then saw something shoot up in the air and heard another muffled explosion. It was the periscope going up in the air and the sub going down. We had hit it right in the middle, carrying away everything that was over the water. The officer on the bridge ordered the boat to cross the spot twice to get anything that might be afloat. But it was unnecessary. Nothing remained on the surface but oil."—*N. Y. Herald*, 15/4.

NORTH SEA AND CHANNEL

H. M. DESTROYER "BOXER" SUNK IN COLLISION.—Admiralty, February 11.—H. M. destroyer *Boxer* was sunk on the night of February 8, in the Channel, as the result of a collision. One boy was missing.—*United Service Gazette*, 14/2.

UNSUCCESSFUL ATTACK ON HOSPITAL SHIP.—March 14.—London announces that the British hospital ship *Guilford Castle* was unsuccessfully attacked at the entrance of Bristol Channel. She was flying Red Cross flags and had all the hospital lights on. This is the second attack of German submarines on a hospital ship within a month.—*Literary Digest*, 30/3.

NAVAL ACTION OFF DUNKIRK.—Vice Admiral Douer of the French Navy reports that an action occurred off Dunkirk between 4 and 5 o'clock a. m., March 21, in which two British and three French destroyers were engaged with a force of German destroyers which had previously bombarded Dunkirk for minutes. Two enemy destroyers and two enemy torpedo-boats are believed to have been sunk. Survivors have been picked up from two enemy torpedo-boats. No allied vessels were sunk. One British destroyer was damaged, but reached harbor. The British casualties were slight. There were no French casualties.—*Army and Navy Journal*, 30/3.

A German official account of the fight between German and allied small sea forces on the French coast off Dunkirk and vicinity on March 21 says: "German torpedo-boat forces from Flanders, in three groups, subjected the fortress of Dunkirk and military establishments near Bray Dunes and Depaume to a long bombardment early on March 21. Good effects were secured everywhere. Two large fires were started in an extensive barracks camp near Depaume into which 800 shots were fired. The coastal batteries replied with a violent but unsuccessful fire. On the return a fight occurred with some destroyers, which, however, withdrew after being several times hit. The forces which participated in the attack returned without damage or loss. Two of our small outpost vessels had not returned from a cruise west of Ostend and must be considered missing."—*Army and Navy Journal*, 30/3.

BRITISH DESTROYER CUTS HUN WARSHIP IN HALF IN FIGHT.—London.—In the engagement between allied and enemy destroyer squadrons off Dun-

kirk last Thursday the British destroyer *Botha* cut a German warship in half and took a leading part in the fight, although her main steam-pipe had been severed by a stray shell.

Early last Thursday morning the British destroyers *Botha* and *Morris* and the French destroyers *Capitaine Mehl, Magon* and *Bouclier* were patrolling the eastern waters of the English Channel when they heard enemy ships bombarding the coast of Dunkirk. They fired star shells, which had the effect of silencing the bombardment and scattering the enemy.

The destroyers started in pursuit of the Germans in a northwesterly direction and discovered eventually that the enemy ships were making for their base. A grim little fight ensued, according to the stories of eye-witnesses.

None of the German torpedoes found a mark, but the *Morris,* emerging from an enemy smoke screen, cut off a German destroyer of a large type and torpedoed her at a range of 500 yards. There was an explosion in the enemy vessel and she sank immediately.

Meanwhile the *Botha* had been crippled and she began to lose her way. The crew determined to do what damage they could and fired both their torpedoes at the two leading enemy boats. Then, her helm having been put hard over, the *Botha* rammed another boat cleanly amidships, cutting the enemy vessel in half.

Tries to Ram Second Hun Ship.—Swinging around, the *Botha* attempted to repeat the ramming maneuver on the next German astern. The enemy craft, however, eluded the effort of the crippled Britisher, but only to fall a victim to the French destroyers. Ablaze, the German boat lay disabled, while the Frenchmen pounded her with torpedoes and gun-fire.

The *Morris* lost the rest of the quarry in the mist and took the lame *Botha* in tow, while the French destroyers circled around, picking up prisoners. From the statements of prisoners it appears that 18 German craft participated in the raid, and when they fled from the French coast, leaving three of their number behind, they were attacked by a British naval air squadron which pelted them with bombs and scattered them in disorder in all directions.

(Two German destroyers and two German torpedo-boats were believed to have been sunk in the action off Dunkirk, according to an announcement made by the British Admiralty on March 21. It was said that no allied vessels were sunk and that one damaged British destroyer had reached port.)—*N. Y. Herald,* 27/3.

BRITISH MONITORS BOMBARD OSTEND.—A successful bombardment of Ostend on March 22 by British monitors is reported by the British Admiralty. The official report also says: "Prior to the bombardment four enemy aircraft were destroyed by our naval air squadron. Enemy aircraft attacked the British machines while spotting for the bombardment, with the result that another enemy machine was destroyed. British seaplanes engaged in reconnaissance in Heligoland Bight attacked enemy minesweepers with machine gun-fire. There were no casualties on the British side. All our machines returned safely."—*Army and Navy Journal,* 23/3.

BRITISH DESTROYER SUNK IN COLLISION; TWO DROWNED.—London, Monday.—A British destroyer was sunk on March 23 in a collision, the Admiralty announced to-night. One officer and one of the crew were drowned.—*N. Y. Herald,* 26/3.

"U-48" INTERNED.—The German submarine *U-48,* which sought refuge in the port of Ferrol, Spain, was interned on March 25. Her propellers were unshipped by the port authorities and her guns and munitions were taken out. It is understood that most of the crew of 30 will be interned at Alcala de Henares, 17 miles northeast of Madrid.—*Army and Navy Journal,* 30/3.

MINE-SWEEPER SUNK.—The British Admiralty announced March 25 the sinking of a mine-sweeping sloop through striking a mine on March 22. Two officers and 64 men were lost.—*Army and Navy Journal*, 30/3.

BRITISH DESTROYER SUNK BY MINE.—A British destroyer struck a mine March 27 and sank, it is officially announced. One officer and 40 men were lost.—*Army and Navy Journal*, 6/4.

ARMED BOARDING STEAMER TORPEDOED.—The British armed boarding steamship *Tithonus* was torpedoed and sunk by a German submarine on March 28, according to an official statement issued by the Admiralty. One officer and three men were lost.—*Army and Navy Journal*, 6/4.

BRITISH DESTROYER SUNK IN COLLISION.—A British torpedo-boat destroyer was sunk on April 1 as a result of a collision, according to an official statement issued by the Admiralty. All on board were saved.—*Army and Navy Journal*, 6/4.

BRITISH TORPEDO-BOAT DESTROYER SINKS AFTER COLLISION.—London, April 9.—A British torpedo-boat destroyer sank last Thursday as the result of a collision and all hands on board are believed to have been drowned, according to an Admiralty statement issued to-night. The statement says: "One of his Majesty's torpedo-boat destroyers sank on the 4th instant, as the result of a collision in the foggy weather. All hands are missing, and it is presumed they were drowned."—*Baltimore Sun*, 10/4.

AMERICAN TANKER SINKS U-BOAT AT END OF FIGHT OF ONE HOUR.—An Atlantic Port, March 18.—At the end of an hour's battle between a German submarine and an American tank steamship, the *Paulsboro* of the Vacuum Oil Company, which arrived here yesterday, the U-boat apparently was sunk, according to officers of the American vessel.

One of the crew on the tanker was wounded by a shell fired by the submarine. Two other shots struck the American ship, which was not seriously damaged.

The fight took place in the Bristol Channel on February 24. The American vessel was about 24 hours out from a British port when the U-boat was sighted. The tanker tried to escape and was pursued. After the American vessel had been within torpedo range for some time without any attempt being made to sink her in this way the U-boat began shelling her.

The tanker halted and gave battle. The officers said the shrapnel shells fired by the American gun crew either fell short or passed over the U-boat for a time, but finally one struck the submarine fairly in the center and she disappeared immediately. The American vessel is of about 4000 tons gross.—*Washington Evening Star*, 18/3.

ANOTHER U-BOAT PROBABLY DESTROYED.—Chief Gunner's Mate Thomas J. Beerman, commander of the armed guard on the steamship *Boringuen*, has been commended by Secretary Daniels for cool and steady work displayed by his gun crews in probably destroying a German submarine the night of October 30, 1917.

An official account of the incident says that at 11.45 o'clock at night, during misty and foggy weather, the lookout of the *Boringuen* sighted a submarine lying to, apparently receiving news from her headquarters. Four shots were fired at the U-boat, and when last seen it was going down in an upright position.

In his report, Beerman praised the captain of the steamer for the excellent manner in which the ship was handled during the engagement.—*Washington Evening Star*, 18/3.

HUN SUBMARINE SUNK BY BRITISH SEAPLANE.—London, March 15.—Under a heavy attack from three German submarines and three German destroyers, a British seaplane recently persisted in her efforts against another enemy U-boat and succeeded in sinking it before being damaged by the fire of the other enemy warships. The seaplane was on patrol duty at 8.30 o'clock in the morning when a submarine was sighted on the surface, with a man standing forward by the gun.

Increasing her speed, the seaplane dropped to an altitude of 600 feet and released a bomb. As she swooped around to repeat the attack a shell from the U-boat burst in the air 50 feet from the propeller. It was seen that the bomb had made a direct hit, a big rent being visible in the deck of the submarine. Just then out of the mist appeared three more enemy submarines, followed closely by three destroyers. All six vessels maintained a hot fire against the seaplane. However, a second bomb dropped on the disabled U-boat. It exploded 15 feet ahead of the bow of the submarine. The whole craft shook and then sank quickly in a pool of oil, bubbles and wreckage. The seaplane, having no more bombs and as the destroyers were coming near, returned to its base.

Seaplanes also have accounted for three other submarines. In one case two large seaplanes attacked a submarine on the surface and with two Germans standing on the conning-tower. One plane dropped a bomb to the starboard of the U-boat, while the other placed one squarely in front of the conning-tower. The explosion of the second bomb was followed by several explosions within the submarine, which disappeared.

Diving from a height of 4000 feet to 1200 feet, another seaplane dropped a depth charge on the spot where a submarine had disappeared. When the water subsided the shape of the submarine could still be seen below the surface and a second bomb was dropped, "after which the ship disappeared."

An enemy submarine with two periscopes and about 200 feet in length, was sighted by a seaplane on patrol duty. The seaplane descended 3300 feet to a height of 800 feet and dropped two bombs as the German submerged. One of the bombs made a direct hit just behind the conning-tower. The submarine turned upside down and sank. Oil and wreckage later came to the surface.—*Washington Evening Star*, 1/4.

TEN U-BOATS ARE SUNK.—London, April 6.—Details concerning the destruction recently of 10 German submarines by naval aircraft, eight by seaplanes and the others by dirigibles has been obtained by the Associated Press from Admiralty reports. The first case is described as follows:

"While on patrol in the English Channel a seaplane sighted a submarine eight miles away, directly in the path of an oncoming convoy of merchant ships. The seaplane dived at 90 miles an hour. The submarine attempted to escape by submerging, but was just awash as the seaplane reached a bombing position and released two bombs, one of which exploded on the conning-tower. The seaplane dropped two more bombs into the midst of the air bubbles from the collapsed submarine, which was of the largest type, carrying two guns."

The second case: "At dawn a seaplane sighted a large submarine on the surface, with a member of the crew standing by the gun. The seaplane dropped a bomb on the tail of the U-boat, and afterward photographed the sinking submarine with a big hole in its deck. A second bomb was dropped close to the submarine's bow and the U-boat collapsed."

The third case: "Two seaplanes attacked a large submarine traveling on the surface at 14 knots, with two men in the conning-tower. A bomb was exploded close to the conning-tower and the submarine began to sink, stern first. A bomb from a second seaplane completed the work."

The fourth case: "Three patrol planes sighted a large submarine as it was submerging and dropped two bombs close to the conning-tower, caus-

ing the submersible to turn turtle and disappear in a mass of oil and wreckage."

The fifth case: "A seaplane sighted two submarines close to the surface and dropped two bombs. One bomb was ineffective but the other hit the deck fairly amidships. The submarine was hidden by the smoke of the explosion and when the smoke cleared the U-boat was sinking with both ends in the air."

The sixth case: "A seaplane saw the track of a torpedo fired at a merchantman. It dived toward the surface and sighted the black shadow of the submarine well below the surface. It dropped two bombs which both exploded close to the submarine, resulting in a large quantity of oil, bubbles and wreckage."

The seventh case: "Two seaplanes sighted a U-boat on the surface and dropped a bomb each. The first bomb caused a heavy list to the U-boat, which began to sink by the stern. The second bomb exploded in the center of the swirl, demolishing the U-boat."

The eighth case: "A seaplane dropped a bomb on a submarine just emerging and the U-boat disappeared with a heavy list to port. The pilot dropped a second bomb into the swirl and a few minutes later a patch of oil 150 feet long and 12 feet wide appeared on the surface."

The ninth case: "A naval airship at midday sighted a suspicious patch of oil and circled it in an effort to ascertain the cause. Suddenly a periscope broke the surface in the midst of the oil. The airship dropped a bomb close to the periscope and a series of bubbles began appearing, indicating that the damaged submarine was moving slowly away under the water. Several more bombs were dropped in the path indicated until satisfactory evidence was obtained of the enemy's destruction."

The tenth case: "An airship dropped two bombs over a submarine which was engaged in attacking merchantmen. Great patches of oil and bubbles indicated severe damage and trawlers made this complete by depth charges." —*Baltimore Sun*, 7/4.

BELGIAN RELIEF SHIP SUNK.—Amsterdam, April 10.—The Belgian Relief steamer *Flandres* struck a mine in the free channel Monday and sank, according to the *Handelsblad*. The crew were saved.—*Baltimore Sun*, 11/4.

THE WAR AT SEA.—By a British Naval Officer.—It is natural that the great offensive on the western front which began on Thursday, the 21st inst. at dawn, should occupy men's minds largely to the exclusion of other matters. For the moment the tonnage problem and even the submarine campaign attract less attention and the sea affair takes a second place in the public eye. It is as well, however, to remember that chiefly upon the security of the communications across the Channel rests the prompt and effective supply of men and munitions for the reinforcement of the fighting lines. Anything like interference on a large scale with the traffic in those waters would have a baleful effect upon the efforts of our armies now sustaining so manfully and courageously the destiny of the allied cause. The Germans—at all events those in high command—thoroughly realize that this is practically their final shot. Even if they win now they may still lose hereafter, but if they fail to win all is lost forever. Manifestly, then, all they have will be put into the endeavor. At any moment they may decide that the time has arrived for the employment of their sea forces to supplement the action of their troops. The high seas fleet, with every other unit of the German Navy, may be used to second the efforts of the army, and beyond a doubt all the machinery at the disposal of the Admiralty is being utilized to obtain early intelligence of movements in this quarter. It is quite possible that the recent appearances of German light craft in the Narrows to the northward of the Dover Straits were but feelers of our strength and preparation thereabouts. The tactical objective would be the Channel Guard, its purpose to open the gate and let through a shoal of

submarines to prey upon the traffic between our coasts and those of France. To strike such a blow light forces only would probably be used, but these would of necessity require for their support the appearance of the high seas fleet in the North Sea. Thus might be brought about the struggle for sea supremacy which has been impending ever since the war began, and which might conceivably furnish the decisive factor in the conflict.

If the recent enemy demonstration off Dover and Dunkirk was intended to test the vigilance of our patrols and the strength of our guard in that direction, it must have afforded the Germans evidence which could not have been satisfactory to them on either point. Their light forces did on the first occasion destroy a few guard vessels, but the cordon was re-established within a few hours. The second event gave them a taste of what they may expect if they try it again in greater numbers. The further details which the Admiralty has revealed of the affair which took place off Dunkirk simultaneously with the opening of the great offensive on land at dawn on Thursday in last week bear witness to the professional skill and dauntless courage of the Dover patrol. The meaning of the bombardment of Dunkirk and other points on the French coast in that neighborhood is not clear. The risk was great, the possible gain small. As a reconnaissance the effort was futile, and the moral effect likely to be trifling. Raids upon Dunkirk from Ostend and Zeebrugge have not been frequent. On March 26 of last year, about 2 in the morning, some German torpedo-boats threw about 60 shells into the town and then withdrew at full speed. There were two people killed on shore, victims of this attack. Early in the morning of the 24th of the following month, another German flotilla appeared off the town and opened fire, to which the coast batteries replied. On that occasion an Anglo-French patrol engaged the enemy, who at once withdrew in haste. A small French torpedo-boat was lost in this little action. Still earlier there had been some fighting in these waters, and in August, 1915, two French destroyers sunk a German boat. There may have been other affairs of a similar character, but as the Admiralty stated in a communiqué last November, "as they in no way interfere with the maintenance and efficiency of our patrol they are therefore not reported."

On the latest occasion, 18 German destroyers in three groups were sent out to bombard the French coast, and just before daybreak the flashes from their guns were seen by an Anglo-French flotilla patrolling in the neighborhood. This force consisted of the *Botha*, a flotilla leader (Commander Roger L'E. M. Rede), and the *Morris* (Lieut. Commander Percy R. P. Percival), both British craft, with three French destroyers, the *Mehl*, *Magon*, and *Bouclier*. Led by the *Botha*, the flotilla proceeded in the direction of the firing, and when the star shells fired by the British leader illuminated the enemy and disclosed their position, they scattered and fled. A little later the French and British boats overhauled a group of the retreating Germans and at once opened fire upon them. A torpedo from the *Morris* blew up one of the enemy destroyers at 500 yards range, and the *Botha*, losing speed, as her main steam-pipe had been severed by a shell, rammed another boat and sunk her. A third vessel was accounted for by our Allies. Thus the engagement was even more complete and satisfactory than appeared from the first accounts of it that were published.

It will be strange indeed if in any action in these narrow waters British aircraft do not play their part. On the morning after the fight in which Commander Rede had been given an opportunity for a display of his courage and decision with such an admirable result, a bombing squadron of the R. N. A. S. met one of the groups of retreating German destroyers and added to their discomfiture by a shower of missiles from aloft. Whether the airmen managed to hit the mark is not stated, but at least they gave the enemy a taste of what might be expected if further raids of the kind were attempted. Nor did the raiders get home without more trouble. Exactly what happened is not told, but as they reached the Ostend Mole, says the official communiqué, "something rushed across the face of the water in a

cloud of spray, apparently from nowhere, a sinister unseen thing travelling at incredible speed. A torpedo struck the stern of one of the German destroyers, and the cloud of spray tore away through a hail of shell of bullets, unscathed, and vanished in the mist."—*Army and Navy Gazette*, 30/3.

BALTIC AND CATTEGAT

FATE OF RUSSIAN FLEET.—Petrograd, March 10.—A former delegate of the Baltic Fleet has reported to the Petrograd Soviet that the whole of the Russian Baltic Fleet is lying at Helsingfors, that the crews have melted away, and that only a watch has been left in each ship. The dreadnoughts are soon leaving for Kronstadt, and the remainder of the fleet will be left in the hands of Finland (where power is practically in German hands), Kronstadt being unable to accommodate more.

The cruisers *Aurora* and *Diana* are lying in the Neva demobilized, all movable articles having been carried away by sailors. With the army gone and the fleet incapacitated, the Moscow Soviet is trying to organize new forces to fight Germany at some future date!

The Bolshevist Party Congress has resolved to change its title to the Russian Communistic Party, and its program will be changed on lines which apparently will make the party international. The idea is that a type of republic should be established everywhere based on Soviet lines—*i.e.*, a proletariat dictatorship and the continuation of the conquest of the *bourgeoisie*. The party resolved by a large majority to ratify the Brest Treaty.

According to a Russian Wireless Press message, in the Baltic the Russian transport ships *Russ, Nitava, Pallada, Merkury, Lakh* (?), *Okean, Diana, Zhulah* (?) have been placed under the flag of the Red Cross and will be used exclusively for that service.—*London Times*, 12/3.

GERMAN TRANSPORT "FRANKLAND" STRIKES MINE.—The German transport *Frankland* struck a mine and sank at Noorland, according to an Exchange Telegraph dispatch from Stockholm on March 24. The transport was crowded with soldiers, cannon and munitions and, according to the dispatch, the entire crew, all of the soldiers and Admiral von Meyrer were lost.—*Army and Navy Journal*, 30/3.

RUSSIAN CRUISER "ADMIRAL MAKAROFF" SUNK BY MINE.—The Russian armored cruiser *Admiral Makaroff* was sunk by a mine in the harbor of Reval, in the Gulf of Finland, March 28. She was 442 feet long and displaced 7775 tons. She was armed with two 8-inch, eight 6-inch and twenty-two 3-inch guns and two torpedo tubes. Her complement was 568 men, and she was laid down in 1905. Her speed was 22 knots.—*Army and Navy Journal*, 6/4.

RUSSIANS SANK THEIR WARSHIPS IN BATTLE.—Washington.—The Russian warships sunk by their commanders off the southern coast of Finland to keep them out of the hands of the Germans, reported several days ago, were blown up after German warships had opened fire on them, according to a despatch to the State Department recently from Stockholm. Three of the Russian vessels were battleships.—*N. Y. Herald*, 8/4.

HUNS ORDER RUSSIA TO STRIP WARSHIPS.—Washington, April 11.—Germany has demanded that the Russians strip their fleet according to confidential information reaching this government recently.

The Russians have been ordered not to leave the complement of over 25 men on any vessel, and the Germans are seeing to it that some of the guns are removed so that the vessel shall be ineffective. The Government's information indicates that the Russians are not resisting the order to any extent

The plan thus far does not show that Germany intends to absorb the Russian units, though it is believed she may attempt to get the few great powerful battle-cruisers which are still intact.—*Baltimore Sun*, 12/4.

GERMAN TRANSPORT SINKS.—March 23.—A stockholm dispatch states that another German transport has been blown up by a mine near the Aland Islands. The men were rescued by the *Frankland*, another transport which was afterward badly damaged by an explosion.—*Literary Digest*, 6/4.

40,000 HUNS LAND AT HELSINGFORS.—London.—The Germans have landed 40,000 troops at Helsingfors, according to an Exchange Telegraph despatch from Copenhagen. A German squadron anchored in the harbor of Helsingfors consists of 12 ships, including the battleships *Posen* and *Westfalen*, each of 18,600 tons.—*N. Y. Herald*, 18/4.

NO DEFINITE KNOWLEDGE OF FATE OF RUSSIAN SHIPS.—There is as yet no definite knowledge as to the exact number and classes of Russian warships that were blown up or sunk by their commanders off the southern coast of Finland to keep them out of the hands of the Germans. A dispatch of April 8 from Stockholm to the State Department at Washington, however, states that three of the Russian vessels sunk or blown up were battleships.—*Army and Navy Journal*, 13/4.

GERMAN FLEET HAS TWO NEW WAR VESSELS.—Amsterdam.—Two new dreadnoughts have been added to the German fleet during the war, according to the *Vossische Zeitung*, and have participated in the bombardment of the fortifications on the islands of Oesel and Dago. These vessels are the *Baden* and the *Bayern*, which were launched in 1915 at Kiel and Danzig. They fire 38-cm. shells.—*N. Y. Herald*, 12/4.

BERLIN DENIES WARSHIP LOSS.—Amsterdam, April 13.—The German battleship *Rheinland*, which was reported to have struck a mine and sunk, has not gone down, according to a Berlin dispatch. She is said to have stranded near the Aland Islands in the Baltic, in a fog on Wednesday, and efforts are being made to refloat her.—*Sun, Balto.*, 14/4.

GERMAN BATTLESHIP TAKEN OFF SHOALS.—London.—A Reuter despatch from Stockholm says that the German battleship *Rheinland*, which was reported stranded near the Aland Islands, has been refloated. The battleship is badly damaged.—*N. Y. Herald*, 15/4.

BRITISH SINK TEN GERMAN TRAWLERS IN THE CATTEGAT.—London.—Ten German trawlers have been sunk by gun-fire in the Cattegat (between Sweden and Denmark), the Admiralty announces. Their crews were saved by British ships. There were no British casualties.

The operations in the Cattegat, the statement says, were undertaken by the commander-in-chief of the Grand Fleet.

The statement follows:

"The commander-in-chief of the Grand Fleet reports having undertaken to sweep the Cattegat on April 15. Ten German trawlers were sunk by gunfire, their crews being saved by British ships. There were no British casualties."—*N. Y. Herald*, 17/4.

GERMANS TO FIGHT RUSSIAN WARSHIPS.—London, April 16 (British Admiralty per Wireless Press).—Dr. Richard von Kuehlmann, the German Foreign Minister, has telegraphed to M. Tchitcherin, the Bolshevik Foreign Minister, to the effect that the Russian Black Sea fleet has separated into sections of unknown nationality, and, in violation of the peace treaty providing for the disarmament of Russian warships, is attacking allies of Germany.

Dr. von Kuehlmann gives notice that all Black Sea warships continuing to act in violation of the Brest-Litovsk treaty will after April 20 be treated as hostile ships.—*Baltimore News*, 17/4.

MEDITERRANEAN

SINK AUSTRIAN BOATS.—Rome, April 9.—An official statement issued to-day by the Italian War Department says:

"In the Asiago Basin our counter-battery shots caused explosions and fires within the hostile lines.

"Opposite Fagare enemy boats were sunk by our artillery fire. Between Salgareda and Zenson we retaliated vigorously against a lively rifle fire of the enemy.

"On the rest of the front there was no event of importance.

"An enemy machine was shot down by one of our aviators above Luce di Piave."—*N. Y. Times*, 10/4.

GUN CREW ABOARD ITALIAN STEAMSHIP DESTROYED U-BOAT.—Men of the gun crew on board an Italian steamship arriving yesterday at an Atlantic port carried silver medals presented them for good marksmanship when they sank a hostile submarine in the Mediterranean on March 12.

With the arrival yesterday of the steamship the first news of the fight with the submarine was brought to this side of the Atlantic. Officers and passengers said the vessel was only a few miles east of Gibraltar during her eastward voyage when the submarine loomed up off the starboard. The undersea boat sent a torpedo after the steamship, but the latter turned quickly and the missile missed its mark. Another was launched, but that also was dodged successfully.

The attacked, which either was German or Austrian, arose and a gun crew popped from her conning-tower. A shell was fired by the prowler, but it went wild. As it passed over the bridge of the steamship the gunners on board the Italian vessel let go their shots. One of these struck the conning-tower of the submarine, and she went down like a huge mass of lead.

It was the belief of those on board that the submarine was one of several having a base off the Spanish coast. They said many submarines are in the Mediterranean.

Mrs. H. C. Dreyfuss, wife of the American Consul at Malaga, Spain, was one of the 61 passengers on board. She said that on a recent visit to Turkey she had learned there are strict regulations regarding movements of all nationals of countries at war with that ally of Germany.—*N. Y. Herald*, 2/4.

BLACK SEA

GERMANS OCCUPY NICOLAIEFF.—Petrograd, March 17.—Telegrams received here state that Odessa and Nicolaieff were taken without resistance. The Russian fleet, which was in the harbor of Odessa, withdrew to Sebastopol. In both Odessa and Nicolaieff the Germans immediately suppressed the Soviets and at Nicolaieff seized the naval dockyards.

The German offensive is taking the direction of Kherson (east of Nicolaieff).

The first through train from Berlin arrived yesterday at Narva.—*Reuter.*

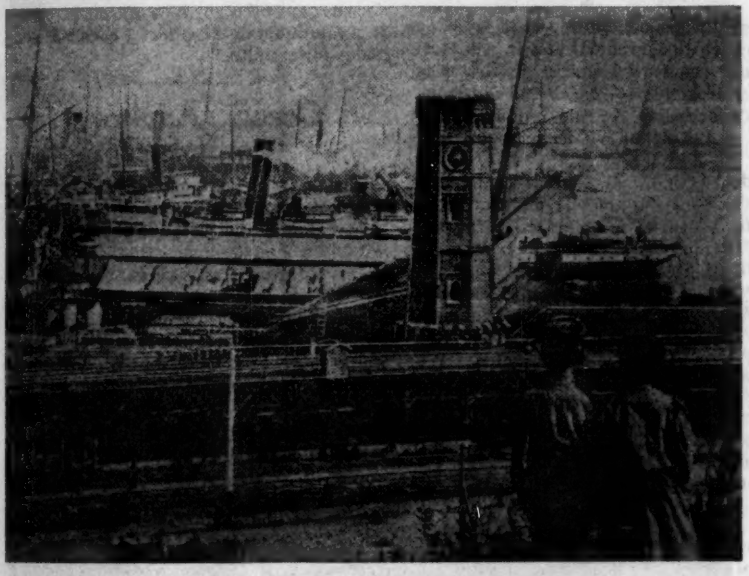
Nicolaieff is northeast of Odessa on the estuary of the Bug. It has a population of 106,000.—*London Times*, 18/3.

ODESSA RECAPTURED.—*Bolshevist Claims in South.*—Moscow, March 26.—The Official Telegraph Agency announces the recapture of Odessa by loyal Soviet and Ukrainian troops after a bloody fight. The naval forces also co-operated successfully in the battle.

The capture of Nikolaieff, Kherson and Odessa has greatly strengthened the position of the Soviet forces.—*Reuter.*

Petrograd, March 25.—The Black Sea fleet is reported to have bombarded Sukhum Kale, a considerable port on the east coast of the Black Sea, north of Batum.—*London Times,* 28/3.

THE PORT OF ODESSA.—Odessa is one of the most important seaports of Russia, as regards population and foreign trade. It was founded by Catherine II in 1792, soon after the extension of the Russian dominion to the shores of the Black Sea. This city is situated on the southern shore of a semi-circular bay, at the northwest angle of the Black Sea, about 400 miles northeast of Constantinople, and is the seaport for the basin of two great Russian rivers, the Dneiper and the Dneister. It is situated half way between the two estuaries. The Bay of Odessa, which has an area of 14



VIEW OF THE HARBOR OF ODESSA.

square miles and a depth of 30 feet, with a soft bottom, is a dangerous anchorage on account of its exposure to easterly winds. Inside it are six harbors, divided by moles, namely the quarantine harbor, the new harbor, the coal harbor, and the practical harbor. In addition there are the harbors of the Russian Company for Navigation and Commerce, and the petroleum harbor. The harbors freeze for a few days in winter, navigation being interrupted every year for an average of 16 days.

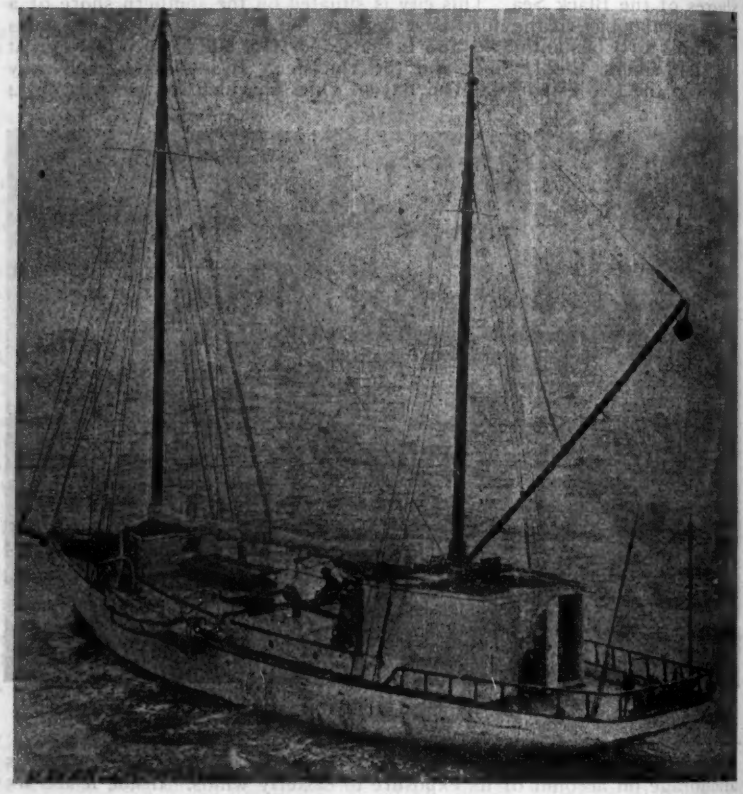
The city is built on a terrace 100 to 150 feet in height, which descends by steep crags to the sea.—*Nautical Gazette,* 11/4.

PACIFIC AND INDIAN OCEANS

SUPPOSED GERMAN COMMERCE RAIDER CAPTURED IN PACIFIC.—A fast motor-driven craft, 60 feet long and having twin screws, believed to be a German commerce raider, has been captured in the Pacific and is being

towed to a Pacific port by a United States cruiser, according to an announcement by the Navy Department to-night.

The government possesses information that the boat, the *Alexander Agassiz*, was outwitted in a port on the west coast of Mexico, where she was completely equipped by a German crew and guns. Before being captured the *Agassiz* was seen to drop heavy objects overboard, which might have been mounted guns of heavy enough caliber to sink American merchant vessels. When overhauled she had German flags, rifles and pistols.



"ALEXANDER AGASSIZ."

As the supposed raider carried no ship's papers she apparently was permitted to clear against law, and that matter is likely to be taken up with the Mexican Government. The incident has revived rumors that Germans have been permitted to use Mexican ports, both on the Gulf and the Pacific. The Navy Department's announcement follows:

"The Navy Department announced that a small American vessel, the *Agassiz*, which sailed from a West Mexican port, where she had been fitted out under circumstances which led the naval authorities to believe she might be used as an enemy raider, has been seized at sea and taken to a Pacific port for investigation. There were found aboard several Germans,

German flags, rifles and pistols. When seized she had no ship's papers, and a number of articles were seen to be thrown overboard.

"The *Agassiz* is a gas-propelled boat about 60 feet long, and so far as present information indicates carried no mounted guns."

Other advices from the Pacific coast indicate that the *Agassiz* was captured off the Mexican port of Mazatlan last Tuesday and that she will reach an American port on the Pacific in the near future. She formerly was owned and used by the University of California in biological research work. A year ago in January she was sold to the Pacific Trading Company, and since then she has been a source of considerable worry to the government.

She had been under suspicion and had been watched at a Mexican port. The captain of the cruiser making the capture has sent a wireless message that the *Agassiz* carried an all German crew and was outfitted as a commerce raider.—*Evening Star*, 23/3.

"AGASSIZ" TAKEN TO PACIFIC PORT FOR INVESTIGATION.—The Navy Department is advised that a small American vessel, the *Agassiz*, which sailed from a West Mexican port, where she had been fitted out under circumstances which led the naval authorities to believe that she might be used as an enemy raider, has been seized at sea and taken to a Pacific port for investigation.—*Army and Navy Journal*, 30/3.

DUTCH SUBMARINE CAPTURED BY INTERNED GERMAN SAILORS.—A submarine of the Dutch Navy was captured at Batavia by sailors from the interned German steamer *Graf von Luttwitz*, who succeeded in evading the marine patrol and putting to sea with their prize last January, according to Fritz von Ebelsohn, an employee of the Dutch East Indian Government in Sumatra, who was in San Francisco on March 19 on the way to Holland. "This submarine was sent out by the Royal Government for patrol duty in East Indian waters," said von Ebelsohn. "One night, during the absence of the crew at a reception tendered them by colonists, when only an anchor watch was left aboard the submarine, sailors from the interned German merchant steamer *Graf von Luttwitz* rowed alongside, boarded the submarine and, after a fight in which a Dutch guard was killed, took possession of the vessel. When the loss of the submarine was learned two Dutch cruisers, as well as several allied vessels, started in pursuit, but whether the submarine was recaptured we never learned."—*Army and Navy Journal*, 23/3.

GERMAN MINE FIELDS OFF AUSTRALIA.—Australia is greatly excited over an extensive mine field just discovered off the coast of New South Wales. There is a great deal of speculation as to the circumstances under which the field was planted. One of the officers of the vessel which discovered the field said that the mines were the latest and most powerful Germany was known to possess. They were oval shaped, measuring 4.6 feet long, by 2.7 feet wide, and constructed of ¼-inch steel. Weighing about 200 pounds, they were filled with T. N. T., one of the most powerful explosives made. "These mines," the officer went on, "were laid out in a proper and scientific mine field, extending for about five miles. They were situated right on the direct route for vessels in that vicinity. They were probably laid by "neutral" vessels as in the case of those off the Cape of Good Hope, which have already destroyed several vessels.—*Nautical Gazette*, 4/4.

BRITISH SAILORS FIRED ON.—Shanghai.—The *China Press* learns from Hankow that the British gunboats *Woodcock* and *Kinsha*, with British Consular officials on board, have gone up the Yangtsze to arrange with the Southerners to cease firing on steamers. The Japanese gunboat *Fushimi*, proceeding ahead, was heavily fired on above Sinti, and returned fire. The

Woodcock and the *Kinsha* remained at Sinti, and sent a party to negotiate, which was fired on and forced to return.

The members of the party report that it is impossible to come to an understanding, and that the Upper Yangtsze is hopelessly closed.—*Reuter.*—*London Times*, 4/3.

ALLIES ON THE YANGTSZE.—Shanghai.—The Hankow correspondent of the *China Press* states that the British gunboats *Kinsha* and *Woodcock*, the United States gunboats *Quiros*, *Samar*, and *Monocacy*, and the Japanese gunboat *Fushimi*, escorting four river steamers, proceeded up the river recently with the object of making an attempt to open up the Upper Yangtsze.—*Reuter.*

The Yangtsze is roughly the dividing line between the north and the south, and since the revolt of the south last year the Upper Yangtsze has been closed, as the southerners fire on steamers that attempt to pass. In December last a steamer of the Asiatic Petroleum Company was heavily fired on and the captain was killed. A gunboat was also attacked. In these cases, however, the offenders were apparently northerners. In an earlier attack, on the United States gunboat *Monocacy*, one man was killed and two were wounded by southerners. Last month the British and Japanese gunboats named in the above telegram, with British consular officials, went up the river to try to arrange with the southerners to cease firing on steamers. The *Fushimi* was fired on above Sinti. The British boats remained at Sinti and sent a party to negotiate, but it also was fired on and forced to return.—*London Times*, 19/3.

ALLIES LAND MARINES AT VLADIVOSTOK.—*Landed to Protect Japs.*—Tokyo.—Japanese marines landed in Vladivostok at dawn April 5 for the protection of Japanese residents, following an attack on a Japanese shop the previous day, it was officially announced to-day. One Japanese was killed in the attack and there were other casualties.

Disorder reigns in Vladivostok, it was said. The police force is under absolute control of the Bolshevik Soviet.—*Baltimore Sun*, 12/4.

JAPANESE MARINES GUARD FOREIGNERS.—Tokyo.—Special despatches received here to-day from Vladivostok say that the proclamation issued by Admiral Sadakichi Kato, member of the Japanese Admiralty Council, giving reasons for the landing of Japanese, created a good impression among the Russians. Japanese marines are guarding the foreign settlements. An armed guard of 300 Japanese volunteers are policing the Japanese quarters.

It is understood in Tokyo that the landing at Vladivostok was made after a consultation with the foreign consuls there. Japanese officials are quoted in the newspapers as saying that the marines will be withdrawn as soon as order has been restored.—*N. Y. Herald*, 12/4.

BRITISH LANDED TO PROTECT RAILROAD.—London.—The landing of British marines at Vladivostok was principally to protect the railway station and the vicinity of the British consulate, according to a Reuter despatch from Tokyo.—*N. Y. Herald*, 8/4.

MAY BE WAR WITH JAPS.—Moscow.—Nikolai Lenine, the Bolshevik premier, in a speech here said that possibly Russia would have to declare war on Japan in connection with the landing of Japanese troops at Vladivostok.—*Baltimore Sun*, 10/4.

GERMAN PRISONERS MOBILIZED.—London.—While the Russian Bolshevik authorities deny it, says a dispatch from Harbin by way of Tokyo to the *Daily Mail*, there are 60,000 armed German prisoners mobilized at Tomsk, Siberia, and destined for the Far East.—*Baltimore Sun*, 10/4.

AMERICANS LANDED TOO.—Harbin, April 5.—American marines have been landed at Vladivostok, as well as British and Japanese forces, according to advices from that place. The Americans are in control of the docks, while the Japanese are guarding the railway and ammunition depots.

Refugees reaching Harbin from Blagovieshtchensk give details of recent disorders in that city. The trouble arose as a result of an attempt by the Bolsheviki to disarm the Japanese, who had armed for self-defence. During the first day of the trouble, General Koshevnikoff, commanding a few Cossacks, aided the Japanese and repulsed the Bolsheviki, but the latter, reinforced by Red Guards, overcame the defenders of the city. Several buildings were looted and burned, including the leading stores, after which the others were sealed and proclaimed community property.

Armed farmers, hearing of the situation, came into the city and forced the Red Guards to yield. A second orgy of pillaging ensued. General Koshevnikoff lost 100 men killed, including eight Japanese and two Chinese. Between 200 and 300 noncombatants are reported to have been slain. The refugees secured 8,000,000 rubles of the Imperial Bank funds, which they are bringing to Harbin.—*Baltimore Sun*, 10/4.

SHOULD REASSURE RUSSIA.—Washington.—Landing of American marines at Vladivostok is expected to have a reassuring effect in Russia. With Americans joining the British and Japanese naval forces in protecting life and the vast stores of war material belonging to the Allies at the Siberian port, the enterprise is given a distinctly international character, which, it is believed here, should quiet fears of the Russians aroused by German suggestions that a Japanese invasion has begun.

Since the attitude of the United States is credited with having stayed the proposal for real Japanese intervention in Siberia to check German influence, participation by Americans is counted upon to emphasize the purely local character of an operation undertaken to protect life and property where there is no competent Russian authority to enforce order.—*Baltimore Sun*, 12/4.

LAND MARINES AT VLADIVOSTOK.—Washington.—Both the State and Navy Departments anticipated that they would be advised as to the reported landing of American marines at Vladivostok.

It has been known for some time—though confidentially—that the United States was represented in the squadron lying off the Siberian port, but officials suggested Americans would not land there unless American lives, as well as property, were endangered.

It is anticipated that the reported American action will be seized upon by Lenine and his pro-German agents to inflame the Russian people. This will be offset, however, by an American statement as to necessity for the action. Anarchy has been rife at Vladivostok, and it is assumed that Americans would join the Japanese and British only in case of extreme necessity.

The reported landing does not mean that this country has changed her policy toward the recently proposed Japanese intervention in Siberia, it was stated officially. It was said that if the marines were landed they were put ashore merely to protect American lives and property and not to interfere with the political situation.—*Baltimore Star*, 12/4.

NO ALLIED ACTION AT VLADIVOSTOK, SAYS MR. FRANCIS.—Washington, D. C.—In giving out recently the text of a statement made at Vologda by Ambassador Francis, the State Department made it clear that the landing of Japanese and British forces at Vladivostok was not in pursuance of any international agreement, but merely was to protect Japanese and British interests.

The Ambassador's statement, which was issued on April 10, said that no Americans had been landed. It was given out by the State Department

in denial of reports that Mr. Francis had declared the incident was due to an agreement.

Despatches to the Navy Department to-day from Rear Admiral Knight, commander of the American Asiatic fleet and to the State Department from consular representatives, made no mention of American forces having been landed and officials now are convinced that the report from Harbin of a landing was started by refugees from Vladivostok who perhaps saw a party of American marines on shore leave or a quartermaster's corps detachment ashore.

The statement by Mr. Francis as given out by the State Department reads:

"The American Ambassador, upon being asked what was the position of his government concerning the landing of Japanese and British marines at Vladivostok, said:

"'The Soviet government and the Soviet press are giving too much importance to the landing of these marines which have no political significance but merely was a police precaution taken by the Japanese admiral on his own responsibility for the protection of Japanese life and property in Vladivostok, and the Japanese admiral, Kato, so informed the American admiral, Knight, and the American consul, Caldwell, in Vladivostok. My impression is that the landing of the British marines was pursuant to the request of the British consul for the protection of the British consulate and British subjects in Vladivostok, which he anticipated would possibly be jeopardized by the unrest which might result from the Japanese landing.

"The American consul did not ask protection from the American cruiser in Vladivostok harbor and consequently no American marines were landed; this, together with the fact that the French consul at Vladivostok made no request for protection from the British, American or Japanese cruisers in the harbor, unquestionably demonstrates that the landing of allied troops is not a concerted action between the Allies.'"—*N. Y. Herald*, 17/4.

GENERAL NOTES

THE RUSSIAN FLEET.—While it is beyond a doubt that on the outbreak of the Revolution in Russia, a number of naval officers were done to death in the most cruel manner, it may be hoped that some of the reports of what happened in the Black Sea more recently have been exaggerated. A correspondent of the *Observer* who was recently in Russia says in reference to the Baltic fleet that the overthrow of Kerensky's government by the Bolsheviks incidentally saved some of the officers from destruction, because a telegram was received at Helsingfors from the new men in power ordering that no further lives were to be sacrificed. According to another correspondent a series of murders were committed in the Black Sea fleet by agents of Germany. Out of some 500 officers arrested, 80 were killed, many of them being beaten to death, while others were shot on board their ships and their bodies thrown overboard. The officers against whom particular animosity was directed, it is said, were those in command of destroyers who had been specially active in the destruction of Turkish shipping. It is conceivable, however, that Germany is anxious to obtain the Russian destroyers in the Black Sea for future use, and may have assisted to remove those whose patriotism would inspire them to render their vessels ineffective before they fell into the hands of the enemy.—*Army and Navy Gazette*, 30/3.

THE SUBMARINE CAMPAIGN—By Arthur Pollen.—The coincidence last week of the revelation by the government of the true position with regard to tonnage—incidentally, a bird's-eye review of the course of the war at sea during the last year—with the great attack on our front in France, intended by the Germans to be decisive, has proved, as nothing else could have proved, that the strategy of our enemy is entirely dominated by the course of the war at sea. Two other events—the destroyer engagement that

took place last Thursday between Dunkirk and Zeebrugge, and the seizure of Dutch shipping—interpreted, as they should be, in the light thrown upon the sea war by the Admiralty revelations, emphasize this broad truth still further. The Dunkirk engagement serves further to indicate to us certain essential truths governing the present sea war, which seem to have been little appreciated during the last three years. Let us deal with these points in order.

Tonnage of the World.—Sir Eric Geddes gave us the broad facts of the tonnage position in his statement read to the House of Commons on Wednesday. On Thursday evening a White Paper was issued setting out, graphwise, the loss of tonnage and its replacement by new construction since the outbreak of war. Two diagrams were published, one showing losses and reconstruction as they affected British shipping only, the other illustrating the same for all neutral and all belligerents other than the enemy. If we regard, as scientifically, I suppose, we should, the world's tonnage, so defined, as under allied control and equally available for allied purposes, then the situation revealed by the second diagram, while anything but satisfactory to those who hope for a speedy victory by America's military help, is very much less alarming than those anticipated who have interpreted the food rationing to foreshadow an impending surrender by famine, although of course, we have paid and must continue to pay until the end of the war the penalty for this serious loss of tonnage.

The situation is, roughly, this. Over 11,800,000 tons have been lost. The British share is just over 7,000,000; the non-British share just under 5,000,000. Of this loss just over six and a half million tons have been replaced by new construction, and just over two and a half millions by the seizure of enemy vessels. British new construction amounts to just over three million tons, and the tonnage we have captured to just under eight hundred thousand, so that our total loss of seven million tons is diminished by the total gain of 3,800,000, leaving us with a net loss of just over three and a quarter million. The non-British powers have constructed half a million more tons than we have, and have captured a million tons more. Their gross gain is therefore, nearly 5,400,000 tons, and as their loss was only 4,750,000 they have a net gain of over 600,000 tons. Setting this off against the net British loss, the Allied Powers and neutrals together are just over two and a half million tons to the bad.

This was the position at the end of last year, and in the last quarter of last year the rate of loss was diminishing very rapidly indeed. It had fallen—since the third quarter—from about a million and a half tons to about a million and a quarter, while new construction had gone up from 600,000 to nearly 950,000 tons. The two curves as published, look as if they were going to meet before the first quarter of this year was completed—as if, in other words, they should have met already. The curves, as published for Great Britain, showed a similar tendency. At the end of the third quarter of 1917, our loss of tonnage was at the rate of 950,000 and our construction 250,000 tons. There was a gap, therefore, of 700,000 tons. But by the end of the year, the rate of loss had fallen below 800,000 tons, and the rate of construction had risen to over 400,000. So, where the graphs end, the gap was below, being but little more than 350,000 tons. Could the curves have continued, these two also would have met by about the end of this month. As I shall point out later, through the accidental selection of quarterly periods, both of these curves are misleading.

But before going on to this demonstration, let us deal with the actual situation at the close of last year. The tonnage available to the Allies, as we have seen, was then, roughly, two and a half million tons down. This in itself does not reveal a position that is dangerous. If new construction were never to rise beyond the level at which it stood at the close of 1917—just under a million tons a quarter—and if there was no improvement in the rate of loss—just under 1,300,000 tons a quarter—it is certain that the enemy would not be able, by such an attrition of our sea transport as this, to bring

the allied combination to the negotiation point—which is the same thing as surrender point—before exhaustion had overwhelmed the Central Powers themselves. The curves, in other words, show at the final point to which they have been carried, that if they continued parallel to each other from now onwards, the sea strategy embarked upon by Germany fourteen months ago at the cost of bringing the United States into the war has already been proved to be a failure.

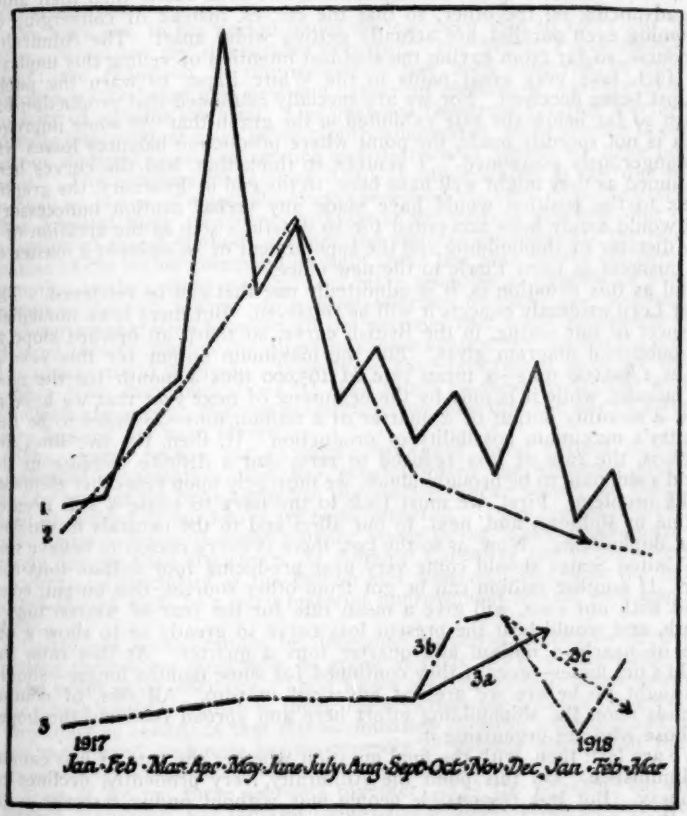
Failure of German Sea Strategy.—The best proof that this is the moral of these curves is that the Germans are concentrating the whole of their forces in an attack upon the British lines to-day. They would not do this if victory were attainable by other means. We have only to look at the situation 15 months ago to realize this. Germany had then just called upon the Allies to make peace or take the consequences. The consequences to England, if she declined to treat on the basis of the war map, were to be, as was pointed out in these columns at the time, the ruthless destruction of her shipping. This menacing irenicon was followed by a step not less significant by President Wilson. This while seemingly an effort at peace was really, as again was pointed out in these columns, only the final preliminary to preparing America for war. He asked, it will be remembered, that both belligerents should state their war aims, under the plea that they might not be found too divergent for accommodation. The pretext was, of course, the merest camouflage. All the world knew that the German war aims could not be stated—and no one knew it better than the Germans. From the moment President Wilson's note was published, the decision of Germany became inevitable. There was literally no alternative to the ruthless submarine war—though such a war would throw America on to the side of the Allies. The elements in Germany that, quite rightly, judged that if the submarine failed American intervention would be Germany's final ruin, implored Bethmann-Hollweg, who was still chancellor, to reconsider this policy. He refused on the ground that the submarines must succeed in a reasonable number of weeks. We had then in the chancellor's statement a measure of the German hope, even if we had not the further measure that it was worth American belligerency. Had it succeeded, of course—and we have only to look at the curve from February to April to see how near it came to success—there would have been no need for further fighting on the Western front. The Allies simply could not have continued the war. But in April the navy began to get the better of the submarine, and has continued not only successfully, but with increasing effect, to defeat it.

If the net rate of loss to-day was likely to remain permanent it still would not be achieving for Germany what Germany hoped to achieve when the campaign began. It is this failure that has made the vast effort on land imperative, and the effort has to be on this colossal scale because to Germany there is no alternative between complete victory and abject defeat. The collapse of Russia, it is true, puts Germany in a very different position to-day in making a bid for complete victory on land than was hers a year ago. But the broad fact remains that a land victory, while to the last degree improbable, is only possible at enormous cost, whereas a sea victory by submarine, which seemed far from improbable, would have been both cheap and rapid.

Will the Situation Improve?—It is important to seize this fact, of the December position being a proof of German failure, as the starting-point of a further consideration of the problem, because it is even more certain that the curve showing the rate of loss must continue its downward slope. It is, as plainly, a mere matter of statesmanship evoking the right *moral*, and of sound business management producing the right organization, for the replacement curve to rise far more steeply in 1918 than in fact it rose in the last quarter of the preceding year. Why, it may be asked, is it possible to speak so confidently on these two points?

The answers to these questions are not very recondite, and to make them more intelligible, I have ventured to redraft the Admiralty curves. I have

supplemented that illustrating British tonnage losses (2) by another (1) showing the monthly shipping losses. And I have varied the monthly British replacement curve (3) by branching off at the month of October with, first, a new curve showing the monthly rate of replacement—which is the curve (3B). Secondly, as a contrast to the Admiralty's curve for the last quarter of last year—marked (3A) in my diagram—I have added a new quarterly curve (3C) for the three months, December, January, and February. This curve shows that the chance selection of the three months October, November, and December give, as a matter of fact, a



totally false view of the situation. If we regard the two curves, the loss curve as showing the work of the navy, and the replacement curve as showing that of the civilians, the course of the campaign is revealed to us almost at a glance. Where the White Paper curve misleads is that it understates the initial naval failure, by smoothing the curve for the three months April, May, and June. It understates, therefore, the really extraordinary character of the purely naval recovery of the position. To realize this we should not only contrast the mean between the rate of loss in the third quarter of the year and the rate of loss at the finish, but the rate at its highest point in April, and its lowest point in the second week of March this year.

And, just as the recovery of the navy is understated, so the civilian effort is, quite unintentionally, flattered.

The published curve gives a picture of the civilians about to join hands with the navy early in 1918. But if we take the quarter which I have selected, we see that, so far from the civilians rising to meet the sailors, they are indeed in full retreat from the enemy and retiring ignominiously from the struggle. The curves, instead of converging, are not even parallel. The shipbuilders are not contented to let the navy improve and only fall off in the same degree that the navy does improve. They have done worse; they are falling back on one flank faster than their allies are advancing on the other, so that the curves, instead of converging or becoming even parallel, are actually getting wider apart. The Admiralty, of course, so far from having the slightest intention of veiling this unpleasant fact, take very great pains in the White Paper to warn the public against being deceived. For we are specially cautioned that production has fallen so far below the rate exhibited in the graph that "if some improvement is not speedily made, the point where production balances losses will be dangerously postponed." I venture to think that, had the curves been continued as they might well have been, to the end of February, the graphic index to the position would have made any verbal caution unnecessary, and would amply have accounted for so drastic a step as the creation of a new dictator of shipbuilding and the appointment of so eminent a master of the business as Lord Pirrie to the new office.

Bad as this situation is, it is admittedly one that can be retrieved. The First Lord evidently expects it will be retrieved. But there is no immediate prospect of our seeing, in the British curve, so sharp an upward slope as the published diagram gives. For the maximum output for this year is put at 1,800,000 tons—a mean rate of 165,000 tons a month for the next ten months, while it is only by the beginning of next year that we hope to show a monthly output of a quarter of a million tons—assumed to be this country's maximum possibility of production. If, then, the two lines are to cross, the rate of loss reduced to zero, and a definite increase in the world's shipping to be brought about, we must rely upon two other elements in the problem. First, we must look to the navy to cause a still greater decline in sinkings, and, next, to our allies and to the neutrals to quicken their shipbuilding. Now, as to the last, there is every reason to believe that the United States should come very near producing four million tons this year. If another million can be got from other sources, this output, combined with our own, will give a mean rate for the year of 500,000 tons a month, and would beat the present loss curve so greatly as to show a net gain of nearly a million and quarter tons a quarter. At this rate, the world's net losses—even if they continued for some months longer—should be caught up before we are far advanced in 1919. All this, of course, depends upon the shipbuilding effort here and abroad realizing the hopes of those who are organizing it.

We are left, then, with the final question whether the rate of loss cannot be diminished. On this point the Admiralty, very prudently, declines to prophesy. But less responsible people may without undue rashness indicate their grounds for being optimistic. They are, roughly, two. If we look at the monthly rate of loss in April and contrast it with that at the present time, we shall notice that the gap beween the highest and the lowest point is enormous. Now, the naval effort which has accomplished this is marked by two characteristics. For want of a better term, it can be described first of all as almost mainly defensive. It has consisted, that is to say, chiefly in concentrating shipping into convoys, and then guarding those convoys by armed ships, so that a submarine desiring to carry out its mission must generally take the risk of encountering armed force superior to itself before it can do so. We had, in other words, finally, and after much hesitation, adopted in the latter half of last year the simple principle of naval strategy which had governed us in all previous sea wars when a simi-

lar difficulty had to be met. We interposed superior force between the enemy and its objective. I have called this policy "defensive" in full realization that the term is misleading, because in the actual event it is the offensive which is taken against the submarine. But the initiative is really left with the submarine. If, when it comes to the point, the Hun pirate does not like the look of things, he will have to let the convoy go by rather than risk an encounter with its protecting ships. The destruction of the enemy's submarines—which we gather from official statements to be at the rate of about twelve a month—is, then, only incidental to the general course of our campaign.

We have not, in the period under review, been able to carry our direct offensive against the submarines very far. The White Paper makes this clear: the reduction in the sinkings "has been achieved in spite of imperfect knowledge of a new and barbarous method of warfare, and of a scarcity of suitable material. Our material resources for this warfare are already improved, and are being rapidly augmented, while science is placing at our disposal means of offence and defence of which we have been in need." The progress made since April, in other words, is not due to any sudden accession of material—always accepting the very welcome assistance that Admiral Sims' destroyers brought at this critical moment—but to the adoption of sound methods of using the material available; to the reorganization of the higher command brought about last May; to the consequential adoption to the convoy system; to a more scientific adaptation of available means to the end in view; to a wiser selection of men; and, generally, to a closer co-operation between all the agencies that could contribute to the desired result. But on the direct offensive against the submarine only the beginnings could be made. How these have progressed since we have to gather from faint indications. I shall touch on these in dealing with the Dunkirk argument. For the moment, let us note that the navy's strongest card has not yet been played.

The second reason for expecting improved naval results it that the defensive organization that has revolutionized the situation since last spring has not yet been applied in the Mediterranean where, the First Lord told us, a third of our losses are being incurred. It has been stated by some who claim to know that our tonnage losses in the Mediterranean are relatively heavier than elsewhere. If Admiral Calthorpe can get his forces to work as satisfactorily as the British and American forces in the Atlantic there should soon be a very material improvement in this very important field.

Lastly, we surely cannot be deceiving ourselves in supposing that the pirates themselves must now be going at their work with greatly diminished belief in its efficiency. Their losses are heavy; their condemnation by the whole world is known to them; their victims are a diminishing number; they must be conscious that this combination of guilt, suffering and failure has not gained, and now has no prospect of gaining, that result for their country that would have led to their being forgotten.

Now, if we put these elements together: (1) the admitted capacity of British, American, and the allied and neutral shipbuilding yards to reach a production of six million tons in the course of this year; and (2) the high probability of the naval effort continuing increasingly successful on its present lines; and (3) having in reserve a stroke which may be far more successful than anything it has yet done—we must, it seems to me, be blind indeed if we do not perceive that the whole position has been reversed since April of last year. It is a result which justifies those who insisted upon the reorganization of our chief command long before things reached their worst. And it is one that reflects infinite credit upon all who, at the Admiralty and at sea, have contributed to making the reforms of last May a reality. And special credit must be given to the present First Lord who, coming to the Admiralty when things were at their worst—when, as Sir Edward Carson told us, the situation seemed perfectly hopeless—has

patiently and with infinite labor first simplified and quickened the supply of material to the navy and—a far greater achievement—has now not only reorganized the fighting side of the Admiralty to fit it to direct the navy's main work, but has gone so far in finding the right men to work the machine that he has created.

The Channel Raid.—At five o'clock on Thursday morning last week, a flotilla of German destroyers, taking advantage of a haze, stole across to Dunkirk from Zeebrugge and bombarded the place for some ten minutes. They were, however, intercepted by some French and English destroyers and a runaway action ensued. At the time of writing no further details are known except that no French or British boat was sunk, and only one British boat injured; that prisoners have been brought in; that it was believed that four of the enemy had been sent to the bottom; and that its navy admits the loss of two. No doubt much fuller details will be in the hands of my readers by the time this paper is printed. In the meantime, it is clear that a very welcome success has been won by the forces under Vice Admiral Roger Keyes' command. A score, standing for the last month against the enemy, has been wiped out. But the incident means more than an agreeable reversal of fortune.

When, two months ago, the change at Dover was announced, it was suggested in these columns that if our forces at this main point of the Narrow Seas were rightly handled, it would prove a very serious matter for the enemy. In introducing the estimates, the First Lord gave us a more precise indication of the form this pressure would take. For a very considerable period the Germans have been using the Channel freely as a thoroughfare by which to get their submarines to their hunting grounds. But the new tactics at Dover have included the extraordinary bold proceeding of illuminating the entire fairway, so as to make an undetected surface passage impossible. The raid of a month ago was carried out to drive off the trawlers and drifters that carried the flares necessary for the illumination. By some oversight they were able to carry out this raid with impunity. But it may be observed that the action of Thursday morning has not arisen out of any attempt to repeat it. The real interest, then, of this incident lies in this: that once the enemy is cut off from one form of sea activity—viz., by the denial of the shortest road to his submarines—he is at once driven to some other, in this case a repetition off Dunkirk of one of the fugitive raids which he has so often attempted before.

If the Channel is effectively closed, the enemy, to get to his hunting grounds, must go north about; and from Heligoland to the western end of the Atlantic lines by this route is between 700 and 800 miles longer than by the Channel. Double this distance—for the submarine always leaves in hopes of coming home again—and you have the pirate's cruising radius, once he is at work, reduced by no less than 1500 miles more not only of destroyer and patrol peril, but a marine risk as well.

A second reflection that this last engagement off Dunkirk suggests is this: From Dover to Zeebrugge is just over 70 miles; and Dunkirk is just over 35 from each point. Seventy miles is, if I remember right, almost exactly the distance from Port Arthur to the Elliott Islands, which the Japanese seized and used as a base for operations against the Russian Fleet in that harbor. These new activities at Dover tempt one to speculate on the course the naval war might have taken had it been possible for us to have seized and defended a considerable anchorage within, say, a hundred miles of the mouth of the Elbe. The Germans have often complained of the disadvantage their navy was at owing to their geographical position. But it is not at all certain that the disadvantage has been all on one side. Unquestionably, that our main sea bases were five or six hundred miles from the main German base has given a character to the war that it could not possibly have possessed had we been situated as were the Japanese in their war with Russia. And it is a character entirely unfavorable to the stronger and more enterprising side. The topic is a large one, and I do

not propose to pursue it at length now. I mention it only to draw attention to the fact that we shall probably witness in the case of Dover and Zeebrugge the development of a campaign from which perhaps a "might-have-been" may be reconstructed by the ingenious. In the meantime, we have heard nothing more of the inquiry into the loss of the drifters a month ago. But it is evident that the lessons of that event have not been ignored.—*Land and Water*, 28/3.

SEVENTEEN SUBMARINE SAILORS BURIED IN BRITISH SOIL.—*Story Just Published of Mine-Layer Running Afoul of Bomb It Had Placed.*—London, March 5.—In a small seacoast village cemetery within a day's travel of London, there are 17 graves, side by side, where British sailors some time ago buried 17 German sailors—all but one of a crew of a U-boat which was sunk by one of its own mines just outside the village. Publication of the story, without mention of place, names and some other details, is now permitted.

The populace of the village was awakened at 10.30 one night by a terrific explosion on the water front, followed a few moments later by a second explosion. The villagers ran down to the beach, but the lifeboat could not be used because there was no one on hand who could run the engine. The old oared lifeboats were dragged from storage in a nearby shed and manned by boys and old men.

Nothing to Guide Rescue Party.—No ship was in sight, nor was there any further sound to guide the rescue party. Nevertheless, the boats put out into the black night, and presently one of them returned with one rescued man, almost completely exhausted.

The man was carried to the nearest house, shivering and nearly paralyzed with fright at the sight of the uniforms worn by the police and coast guards. He expected instant death. The villagers reassured him, and gradually his terror vanished.

In answering questions the man said he was the captain of a German mine-laying submarine. He had been ordered to lay 10 mines along the coast, and nine of these had been unloaded successfully when the U-boat struck one of them. All the lights were extinguished by the explosion, and almost immediately afterward one of the mines left in the boat let go. The captain, still uninjured, managed to get through the hatch and into the water. The submarine was blown in two.

Papers Inside Lining.—The prisoner was visibly anxious about the loss of his boots. These were recovered, eventually from the water, and a number of confidential papers of great importance were found stitched inside the lining.

The submarine was raised and towed into port. The hulk contained 17 dead Germans and several live mines, one of which is on exhibition at the village pier as a trophy. The wreck of the submarine has been inspected by a number of visitors, including the officer commanding the nearest American naval station.—*Washington Evening Star*, 25/3.

SPAIN AND THE CANARIES.—Count Romanones, months ago, declared that unless Spain meets the situation created by the German submarine blockade with a constructive policy, her internal and external affairs would go from bad to worse. He was a true prophet. Nevertheless, his successors in the premiership have continued to drift. Take, for instance, the Canaries. They are Spanish territory, and therefore assumed to be neutral. But in practice they are being turned to enemy purposes by German influence. The German Consul at Teneriffe, indeed, appears to wield greater authority than the King of Spain. Only a little while ago Spanish subjects were detained by an enemy submarine on one of the islands on the order of this person until it was proved that the word of local Spanish authorities with regard to two men on board a Spanish ship was true. Here was a German in the Canaries exercising the functions of sovereignty openly.

But what of the long series of incidents in which Spain's neutrality has been violated more quietly? If she takes them lightly she can hardly expect the Allies to share her view. The position of the islands, commanding as they do the Atlantic routes, especially those followed by American shipping, is such that with Spanish neutrality more or less leaning to the enemy, Allied merchantmen are at a disadvantage. To put it bluntly, they serve the purposes of German submarines in ways incompatible with strict neutrality. It is about time that some pressure was put upon Spain to deserve less of Count Hertling's and Count Czernin's "gratitude."—*Army and Navy Gazette*, 30/3.

AMERICAN TRAINS GUN TO SINK OWN VESSEL.[1]—*First United States Warship to Sink in This War Was the Rehoboth.*—By A. R. Decker, Correspondent of the *Evening Star* and *Chicago Daily News*.—With the American fleet in French Waters, February 10.—Full stories have been published of the torpedoing of the *Antilles*, the *Finland*, the *Rochester*, the *Alcedo* and other American patrol ships and merchant vessels, in which American gun crews and sailors lost their lives. No one, however, has told the tale of the *Rehoboth*, the first American auxiliary warship to be lost in European waters. Only the bare fact that the *Rehoboth* foundered has been mentioned.

The *Rehoboth* was Captain Bill's fishing steamer, with which he used to seine for porgies off the American Atlantic coast. Mobilized with his ship, Captain Bill sailed her across the Atlantic, leaving Boston so loaded with supplies that the *Rehoboth* had a bare foot of freeboard at the waist.

Ensign "Cy" Barnes, former executive officer on the *Rehoboth*, told me how the American ship found its watery grave.

Escort for Convoy.—"We were escorting the convoy," said Ensign Barnes, "when a strong norther caught us off a certain island. Charts name it. The tide running against the wind made a short sea, which kept us continually awash. At every plunge the ship seemed to buckle, perhaps, because of the weight of the guns and their mountings. We pounded away all night. When morning broke the waves seemed to be running higher. The wind was howling like an enraged beast.

"After a few hours of this the *Rehoboth* started to make water. Her seams were opening.

"Captain Bill had been up all night, like nearly all of us. Things looked rather black. He decided that there was no chance of saving his vessel, since we were helpless on a lee shore. So Captain Bill gave the order to abandon ship. Just then a British trawler appeared on top of a big wave.

"With the last few pounds of steam that remained in the boilers, Captain Bill turned his ship so that we ran with the waves. In this position we were able to launch the boats, but not without difficulty.

Captain Wants to Save Ship.—"When Captain Bill saw the trawler hope returned to him. He thought he might yet save his ship. So he returned to the *Rehoboth* and alone tried to get out a towing line. It was no use: the waves were too high and the ship was too waterlogged. Captain Bill jumped back into the small boat when a wave brought it near the rail.

"The transfer to the trawler was as difficult as the departure from the *Rehoboth*. The British tars received us kindly and made us as comfortable as possible, though theirs was a very small vessel and they did not have too much for themselves.

"There was an interesting discussion between the skipper of the trawler and Captain Bill regarding the fate of the *Rehoboth*.

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[1] The true story of what happened to the first American fishing vessel mobilized for war has never been told. It is a thrilling story, and Mr. Decker secured it from the lips of Ensign Barnes, who saw the *Rehoboth* go under.

"'She is a derelict,' said the Britisher, 'and if you don't sink her I will have to. Those are my orders.'

"'Go ahead and sink her, then,' said Captain Bill.

American Sinks Own Ship.—"The British gun crew opened fire on the unfortunate *Rehoboth*, but so lively did she bob around in the choppy seas, that the projectiles fell too short or too long. Finally, an American gun-pointer took a shot at his own ship. It was a wild scene, the British trawler jumping so that her own sailors would exclaim, 'Roll, you bloody rascal! When are you going to turn over?'

"The fire reached the magazine, which exploded, in a final fitting salute to the sinking of the *Rehoboth*. Some mines also exploded and caused the trawler to tremble. A few minutes later the *Rehoboth* sank."

When the work of the American fleets is summed up it will be found that the fishing steamers, the converted yachts and the destroyers of the first contingent filled a breach which, unfilled, might have had a serious effect upon the outcome of the war.—*Washington Evening Star*, 28/3.

GENERAL PERSHING PRAISES CREW FOR REPAIRING VESSEL.—*Seamen on the Woonsocket Saved Much Money and Time in French Port.*—Herald Bureau, No. 1502 H. Street, N. W., Washington, D. C., Sunday.—General Pershing, in a despatch made public by the War Department to-day, commended the crew of the steamship *Woonsocket* for exceptional service in assisting in unloading the cargo in a French port, and making repairs to the hull of the vessel, thereby saving time and expense for the government, which is sorely in need of ships.

In making public General Pershing's despatch, Major General George W. Goethals deplores the fact that no means has been provided by the government for rewarding services of this kind. It is probable that Congress will be asked to authorize a reward of some kind for such exceptional services. In his despatch to the department, General Pershing says:

"While in port here the crew of the steamship *Woonsocket* rendered exceptional service in getting cargo ashore and at the same time making repairs to the hull. This voluntary action on the part of the crew saved a delay which might have amounted to a week, and also saved an expense of several thousand dollars. All officers who have knowledge of this matter have recommended that such recognition as may be possible be extended to this crew in form of bonus or special privileges. Recommend that the extraordinary amount of work and efficiency shown by this crew should if possible be made known generally in such a way as to secure emulation."

General Goethals transmitted this report of General Pershing to the commanding general of an Atlantic port of embarkation with the following comment:

"It is directed that upon the return of the steamship *Woonsocket* you express to the master and crew of that vessel the appreciation of the department for the voluntary services rendered and grant them such special privileges as under the law and regulations can be granted in the premises.

"Their attitude in assisting the unloading of the vessel and doing everything possible to expedite its departure from port is commendable and establishes an example which it is hoped that all other crews in the army transport service will follow.

"This office regrets that a more substantial means of rewarding services of this kind is not available."—*N. Y. Herald*, 8/4.

SHIP BUILT IN 108 DAYS.—Washington, April 17.—A new record for merchant shipbuilding was announced in the contest between yards for pre-eminence in turning out such vessels. The Skinner and Eddy Shipbuilding Company, of Seattle, has delivered to the shipping board the 8800-ton freighter *Ossineke* in 109 days from the time the keel was laid, 81 days ahead of the date set in the contract.

In pre-war times, 12 to 18 months were required for the delivery of such a craft. The best previous record for completion of a large vessel was 113 days, made by the Columbia River Shipbuilding Company, of Washington State, in building the 8800-ton *Canoga*.

Eastern shipyards are trying hard to take the honor of fast work away from the Pacific coast, but so far have failed to equal the western speed. Chairman Hurley received to-day photographs from a certain unidentified eastern yard, where a strenuous effort is being made to put a vessel into water in approximately 50 days. The photographs are being taken daily, showing the growth of the vessel under the hammers of the workmen. Until the launching is done, the name of the yard will not be made public.—*Baltimore Sun*, 18/4.

THE "CELTIC" SAFE IN BRITISH PORT; LIFE LOSS SMALL.—Safe in a British port, the steamship *Celtic*, of the White Star line, which was struck two days ago by a torpedo, is still afloat. The vessel was towed into the port yesterday for repairs, which will enable her to resume her work as a cargo vessel.

News that the steamship had been saved was cabled to the New York City offices of the line. This satisfied officials of the company, for it meant and on the men in the water, and, after jeering at them, made off. The *Celtic* is used exclusively as a cargo steamship at present, and was on a voyage from England to the United States when attacked.

Although the *Celtic* was built in 1901, she still is one of the staunchest steamships in the North Atlantic trade. Her loss would have been equal to the destruction of at least six or eight ordinary vessels in freight service. Hundreds of thousands of tons of freight have reached England each year as the result of her service. She is rated high by Lloyds' and is fully covered by regular and war risk insurance, but in the present crisis, because of the great need for bottoms, her monetary value is of little consideration, her actual service being the only thing considered.

Details of the damage to the vessel have not been received here. Officials feel confident, however, that the 21,000-ton vessel soon will be in commission, because they think that if she was able to make a port she can be repaired with rapidity.—*N. Y. Herald*, 2/4.

U-BOAT SINKS THIRD U. S.-SEIZED VESSEL.—London, March 25.—The Admiralty announces that the American steamship *Chattahoochee*, 5088 tons net, has been sunk by a German submarine off the English coast. Her crew of 78 was landed safely. The master states that the submarine fired a number of torpedoes, of which four struck the vessel.

New York, March 25.—The steamship *Chattahoochee*, torpedoed off the English coast, was formerly the Hamburg-American liner *Sachsen* and was one of the vessels seized by the United States when this country entered the war. She was built in 1911, at Belfast, and was 470 feet long with a 58-foot beam.

The *Chattahoochee* left an American port last January 27, with a cargo for London. Advices received by the United States Shipping Board here were that she arrived safely, discharged her cargo and was being used in foreign waters in connection with the transport service of the American Army there. The vessel was commanded by Captain P. C. Lawe.

When the European war broke out the vessel was engaged in the Pacific trade and was self-interned by her captain at Manila. After being taken over by the United States she was loaded with cargo for Seattle and from that port sent to the Atlantic through the Panama canal, arriving here the latter part of last December. When she last left for London the vessel was unarmed. The *Chattahoochee* is the third of the seized German ships to be sunk by submarines.—*Evening Star*, 25/3.

AMERICAN DEVICE TRAPS 12 U-BOATS, SAYS C. E. MITCHELL.—*National City Company's President Tells News of Successful Test of New Invention.*—An American invention has resulted in the capture of more than a dozen German submarines in two days, according to information which Charles E. Mitchell, president of the National City Company, said he had received yesterday.

"Within the last hour I have received word from a most reliable source," said Mr. Mitchell, addressing 300 Liberty Bond workers of the Electrical Division of the Rainbow Division, Liberty Loan Committee, at the Edison Company's rooms, Fifteenth Street and Irving Place, "that America has put forward a new invention which has been tried against the German U-boats, and that this invention was so successful that more than a dozen submersibles were captured within a space of two days."

When the meeting had ended Mr. Mitchell was asked for further information about the invention.

"Not another word," he said. "I have said all I can say at this time."

Mr. Mitchell refused to give the source of his information and said he did not know whether a public announcement might be expected from Washington. He did say, however, that he had confirmation of the reports that American chemists had perfected a new corrosive gas which would have an important bearing on the war.—*N. Y. Herald*, 17/4.

HOW A GOTHA AND ITS CREW WERE CAPTURED.—*French Farmer's Presence of Mind.*—From our own Correspondent.—Paris, March 19.—The Boulogne correspondent of a northern local journal gives an exciting account of how a Gotha and its occupants were captured recently.

Midnight had just struck at the church of Sains en Gohelle, not far from Béthune, last Wednesday, when a farmer living on the edge of the village heard some one knocking at his door. He arose, and going down half-dressed found two aviation officers. "We have had a breakdown with our motor-car close by," said one, speaking in good French. "Could you make us a cup of coffee and get some petrol?"

"Coffee is easy enough," replied the farmer, "but not petrol. If you go a little farther to the marketplace, you will find British lorries, which will supply you." "Oh, British lorries," said the flying man, and he appeared worried.

The two men drank a big bowl of coffee eagerly, and then offered the farmer a round sum of money for civilian clothes. The farmer's suspicions were now aroused, and he at once called his servants and in a body they accompanied the airmen to the nearest British post, where the strangers confessed that they were Germans, and were arrested. They said that they had come from a raid on Boulogne, and had been forced to land 10 miles from the front for lack of petrol. They had left two non-commissioned officers in charge of their machine, which was a Gotha of the latest model, close by. When the machine was reached one of the non-commissioned officers had already taken to his heels, but he was captured two hours later. The other non-commissioned officer was in the act of destroying the instruments, and had unsuccessfully attempted to burn the Gotha.

"You had better take your lorries to a safe place," remarked the commander of the machine half jokingly, "because to-morrow night there is a chance of their blazing." The hint was, of course, taken.

As for the officer who spoke French so well, he had been a medical student in Paris before the war, and he commanded a squadron during the Gotha raid on Paris a month ago.—*London Times*, 21/3.

ANOTHER NAVAL YARD FOR GERMANY.—*Capture of Nikolaieff.*—German report: In Southern Ukraine, Nikolaieff has been occupied.—*Admiralty, per Wireless Press.*

The capture of Nikolaieff, which was unofficially reported from Petrograd on Sunday, places the chief naval yard on the Black Sea in the enemy's

hands. Most of the large vessels of the Black Sea fleet were built there, including the three 22,500-ton battleships of the *Imperatritsa Maria* class.

The town has 106,000 inhabitants, and is situated nearly 70 miles north-east of Odessa. Besides its naval pre-eminence, Nikolaieff was also before the war one of the chief ports for the export of cereals from the most fertile governments of the Ukraine, immense storehouses having been built in the commercial port. The town is protected by several forts, but no resistance seems to have been made to the Germans.—*London Ttimes*, 19/3.

U-BOAT STORIES.—The Admiralty has afforded representatives of the press an opportunity of reading the logs of a number of vessels which have been sunk or attacked by enemy submarines, and the information derived from these records will enable the public to judge more practically than has yet been the case of the splendid services which have been uncomplainingly rendered to the nation by the mercantile marine. These official records of seafaring captains who have been the victims of submarine attacks show that our sailors have been shot at, jeered at, and left to the mercy of the waves, and that their ships have been "looted" before being sunk. At the same time, the logs reveal the fact, in one or two instances, that submarine crews have shown a dislike for their nefarious work, and that help has been given to sailors who were struggling for their lives in the open sea.

The following are some of the incidents recorded:

In the case of one ship, on which there were 47 hands, the boatswain was standing abreast of the main mast when he saw the wake of a torpedo as it approached, and he had no time to report before the vessel was struck. After the explosion all hands were sent on deck. The ship sank stern first. There was no time to lower the boats, and practically the whole crew had life-belts on when thrown into the water. When the submarine came to the surface a line was thrown to a raft which the crew had managed to launch, and it was hauled alongside the enemy vessel. A colored man was ordered on board, and as soon as he stepped on the submarine both his wrists were seized, and he was firmly held while being interrogated. The enemy took a photograph of him and also of a man on the raft. When the interrogation was completed the colored sailor dived from the submarine and swam to the raft. As the ship was sinking the master dived off the bridge; he was not seen later. A number of men were rescued after being in the water for four hours.

Robbery was reported in connection with another attack. After the vessel had been shelled many times, the master and crew abandoned the ship, lowered the lifeboat, and rowed towards the submarine. Eight shots were fired at the lifeboat, followed by four revolver shots. It was only then that the crew saw the submarine, which was about 500 yards away. The captain and his men were taken on board; and the commander of the submarine boarded the vessel, removed the clothes, provisions, and papers, and left bombs on board which afterwards blew her up. The master was searched, and £22 5s., with his watch and chain, was taken from him. The commander of the enemy vessel said that there was no food left in the submarine, which had been six weeks out, and he also mentioned that food in Germany was very short. During the night the crew were picked up by a destroyer.

"Torpedoed, and on her beam ends, but not actually seen to sink," is the description given by a captain of an attack on his vessel. She was struck between the stokehold and No. 2 hold, both of which were blown in. The crew had time to take to the boats. The German captain, speaking in perfect English, asked for the name of the ship and her tonnage, and verified the particulars given to him by reference to *Lloyd's Register*. The master's boat, with 23 men, reached shore the following day, and the mate's boat, with the remainder of the crew, was picked up. It was reported by the master that the officers and men of the submarine were "quite friendly and polite."

One night a vessel was struck by a torpedo. The engines were stopped, and all hands went to the boat stations. The port boat was lowered safely, but within three minutes the ship sank and the davit caught it and capsized it, all hands being thrown into the water. The second officer went down with the ship, but seized hold of the capsized boat and climbed on top of it. The boatswain also was taken down, and he, too, as well as a seaman, got on the boat. After they had been on the upturned boat for some minutes a submarine appeared and hailed them to come on board. They explained that it was impossible. The submarine went ahead, and about a quarter of an hour later returned, and the men were again asked, in a rough voice, to come on board. The same answer was given, whereupon the submarine again went ahead, putting her helm over, and the whole of the men were thrown into the water. Those on the submarine must have known that there was a man under the boat, as they could easily have heard him knocking. His comrades, however, pulled out the plug and gave him air, and eventually the boat was righted and he was rescued.

One of a group of other ships was torpedoed and the crew took to the boats, one of which capsized, and seven of the men managed to reach the lifeboat. The submarine came close, flashed her searchlight on the boat and on the men in the water, and, after jeering at them, made off. The survivors were picked up by a French torpedo-boat next morning.

Attacked by a U-boat, which fired two shots, the master got out the boats, left the ship, and pulled towards the enemy vessel. The commander took four or five of his own men in the ship's boat and put some bombs on board. As these failed to explode he went back for more explosives, taking with him everything out of the ship that could be carried—food, clothing, compass, and all the metal that the enemy could lay hands on. The vessel was then blown up, the crew in the meantime being on the deck of the submarine. They were treated very badly, their clothing being thrown out of the boat into the sea. Only one oar was left them, five having been flung overboard. The master begged for another, but he could not get any more.

Two submarines were sighted at a distance of about six miles attacking a barque. The master of the observing vessel altered his course and lit a smoke cowl to screen his ship, but it was not very effective. Shortly afterwards he was attacked by one of the submarines. Being armed the vessel opened fire, but the U-boat was not within range, and a shot from the submarine struck the ship. Orders were given to haul down the ensign, and steps were taken to abandon her. The boats were lowered and the ship was abandoned the enemy still firing. The ship was hit 19 times before the crew were properly clear. When the submarine came up the vessel was "generally looted," everything the enemy could lay their hands on being taken, including the spirits in the bonded room. Some of the Germans were seen drinking on the bridge. The enemy were alongside for about an hour, and "treated our men quite fairly, even returning some of their personal gear which they had looted." The enemy crew were very particular in getting all the leather they possibly could, even going so far as to take old boots which were long past usage. Soap was also in great request, and a tin of lard was considered a prize.

In another instance, a vessel struck on the port side in the engine room went down at once, the crew having only time to launch the boats. About 10 minutes before the ship was torpedoed a floating object was sighted, which appeared like a small vessel bottom upwards. This was reported by flag code to another vessel close by, but no reply was received before the ship was hit. The master was of opinion that this object must have been placed there as a decoy by the submarine to draw the attention of the "lookouts" away from herself.

When a motor schooner was struck the ship's boat was rowed to the submarine, and the master and one man were taken aboard. The submarine then towed the boat to a disabled ship, and sent two men on her with

bombs. An officer asked the master, "What was the cargo? Where from? Where bound? Why did the ship not come with convoy?" The officer spoke in very good English, being prompted in German by the captain of the U-boat. The master and crew were much struck by the pallid appearance of the officers and crew of the submarine and by their nervous and excited manner. The commander was continually urging haste, and the officer who was placing the bombs on board could hardly hold them owing to his nervous tension. One of the crew of the submarine who had lived long in England, speaking to the ship's crew, cursed the war, and said that he wished it was over, exclaiming that it was not their fault, but that they had to do their duty. "You won't believe it in England," he added, "but it's true." The submarine appeared to be of an old type and to have been a long time at sea. —*London Times,* 18/3.

PRISONERS ON U-BOAT.—*First Officer of the Atlantic Sun, Tanker, Taken off.*—An Atlantic Port, April 6.—When the American oil steamship *Atlantic Sun,* of 2333 tons gross, was torpedoed and sunk by a German submarine in the war zone a few weeks ago the first officer was taken prisoner by the crew of the U-boat, according to members of the oil vessel's crew, who arrived here to-day.

Capt. Walter K. Miller, who confirmed the story of the sailors, told of his own remarkable escape from death. A torpedo struck the *Atlantic Sun* in the port side and penetrated an oil tank, which, exploding, blew a large hole in the side of the vessel. The captain's cabin was wrecked and the skipper fell into the hold and the rush of oil to the surface carried him through the aperture which the torpedo had made and he found himself floating in the débris.

Told Captain Was Dead.—While the submarine was shelling the damaged vessel the latter's crew rescued Captain Miller. The U-boat approached their life-boat and the second officer informed the Germans that the captain had perished. The submarine commander thereupon ordered the first officer, whose name Captain Miller would not disclose to-day, into the U-boat, the German explaining that he was obliged to produce an officer in order to obtain a bonus which, he said, the German Government had offered for sinkings.

The *Atlantic Sun* hailed from Philadelphia. She was built at Newcastle, Del., in 1893.—*Baltimore Sun,* 7/4.

TRAPPING U-BOATS.—A Dutch correspondent has received from a German sailor interned in Holland a lively account of his first and last adventure in a German submarine.

After being interned in England for a short time, he made good his escape with a fellow-prisoner in a small boat, and was picked up by a German submarine near the English coast. Soon afterwards the submarine sighted some fishing vessels, but their curious movements caused the Germans to suspect a submarine trap, and they dived. They proceeded slowly submerged, but presently the screw began to beat irregularly, and the commander could not make out what happened.

After about two hours the water seemed curiously still, and as it felt as if they were making no headway the commander decided to come to the surface. When they emerged, they were alongside a quay full of laughing faces of British naval officers and bluejackets.

They were safely in a British port—"Just towed in like a blooming fish," said the German.—*London Times,* 15/2.

SUBMARINE FIRES ON FISHING-BOAT CREW.—The unarmed Irish coasting schooner *Nanny Wignall,* 93 tons gross, was sunk off the Irish coast by a Geman submarine March 12. As two wounded seamen were being rescued by their shipmates the submarine fired on them.—*Army and Navy Journal,* 16/3.

ON CONVOY DUTY.—The following account of the work of British destroyers on convoy duty is supplied by a special correspondent who recently made a cruise in the leader of an escorting flotilla.

We were in the harbor of a famous southern port on board the leader of a destroyer flotilla ready to start on one of its ordinary cruises as escort to merchant convoys. It was a cold, bleak, stormy day, with a fine cross sea running in the Channel. One after the other the members of the flotilla cast off from the buoys, and slipped silently seaward. In the outer harbor were the huge merchantmen we were to escort into the comparative safety of the broad Atlantic. They were a strange, motley-looking crowd, with a camouflage appearance of the weirdest description, calculated to send futurist artists into ecstasies. These weird-looking vessels followed the destroyers in single file out of the harbor at slow speed until well into the Channel. There they were formed up and made into as compact a crowd as possible. A destroyer in front and others on each flank constituted a protective screen. After we had got well out and had lined up our escort full speed ahead was ordered, but that was full speed for the convoy only. The destroyers were at about half speed, and this was partly expended in zig-zagging. To and fro, without a moment's respite, the leader proceeded in front of the convoy, always about 500 to 600 yards ahead, as though showing to timid followers that it was perfectly safe to follow where we led. On the flanks other destroyers kept up the same zig-zag procedure, and astern yet another zigged and zagged and did her best to keep the rear most ships up to the full convoy speed.

Night shut down on us like a black blanket, adding greatly to the difficulties of the escort. Not a star was to be seen, not a light permitted to be visible on any ship. At 400 yards distance very sharp-eyed look-outs could just discern misty black shapes, and carry on navigation with just sufficient accuracy for safety. Frequently it became necessary to ask, by means of a few short, sharp flashes with an electric signal lamp, where the respective units of the convoy were. Despite the utmost care lavished upon them, they had straggled, and were covering a wide distance. "Cannot effectively screen you if you scatter like this," we signalled. Later we ran into a fog bank, which absolutely obscured visibility, and rendered zig-zagging a dangerous procedure. The look-out was increased, and the speed of the escort reduced to that of the convoy, while touch was kept by frequent speaking or whispering on the sirens. Hour after hour dragged slowly on, until by the time the sun had burst through in the morning and the flotilla had rounded up the scattered ships into good position again, we had passed through a fog bank 60 miles in length. Then the dreary zig-zagging by the destroyers was resumed. Throughout the day there was no incident to relieve the routine of the voyage. The zig-zagging proceded with regularity, the ship continued her steady roll, and the waves continued to wash the decks everywhere abaft the forecastle head. And so on into the night again. By midnight the allotted hundreds of miles to comparative safety for the convoy had been almost covered. Later it was decided to bid them farewell, and so there were a few more flashes from the lamps. "Wish you safe and pleasant voyage" from the leader of the escort was responded to by "Thanks for your efficient escort" from the commodore of the "empties," and convoy and escort separated and went their respective ways into the blackness of the night.

The destroyer escort proceeded on a straight course that had neither zigs nor zags in it, but at a speed of about 20 knots. Somewhere out in the black unknown, in the region of a given point, we were to meet with a convoy of laden ships, and escort them to safety. They were about 80 miles away when we started to look for them, and in the early daylight many eyes glued to glasses were sweeping the horizon. A dirty little smudge on a fleecy cloud that seemed to be resting on the water as far away as the eye could reach first attracted attention. The smudge moved and grew large; other smudges appeared and took definite shapes; the objective was

in sight. In half an hour we were within "speaking" distance and had exchanged greetings and turned about. Positions were again taken up, and the homeward journey with the fully laden convoy was begun.

We had met in those wide waters within half an hour of the fixed time. There were not so many homeward ships as there had been outward. They had been escorted so far by a British armed cruiser—a modern P. and O. liner. One ship was laden with meat for France, and she went off towards her destination with an attendant destroyer. The armed cruiser with another destroyer also left, her speed being probably a sufficient safeguard as far as her home port. The remaining food ships and destroyers shaped a more northerly course. An S.O.S. from a hospital ship caused a momentary bustle and a hasty calculation of her position. She was at least 200 miles away, and therefore beyond our aid; but in a few minutes came another wireless message cancelling the S.O.S. and making us more easy in our minds. Another message told of the sinking of a small Norwegian vessel, and the rescue of her crew not very far away. Still another told of heavy firing west of the Scillies, but this proved to be a patrol sinking a floating mine. Then there was an intimation from a point about 30 miles away that a destroyer was busy with a submerged submarine, tickling her up with depth charges, or what the sailors call "pills."

For two days and nights we proceeded steadily towards the home port indicated on the sailing instructions, altering courses on receipt of shore instructions as to the last whereabouts of "Fritz." We arrived at the very gates of the great empire city port and there, with their charges in safety, the destroyers just "dipped" *au revoir*, turned about, and swept away on their 400 miles homeward journey.

"I am afraid," said our commander before I left, "there is not much in this business for you to write about, so you will have space to say something on behalf of the men. They are really splendid. They have little enough to be jovial about, and not a bit of comfort on these vessels and on this kind of work. Yet it seems that the more the discomfort and the greater the hardship, the more cheerful they are. They are our greatest national asset."—*London Times*, 19/3.

CALLS FOR AMERICANS.—London, April 15.—"What is now most pressingly required is that the fighting forces of the United States should be brought as speedily as possible into the field," said A. J. Balfour, the Foreign Secretary, in speaking at a luncheon to the American labor delegation to-day.

"The German plan," continued Mr. Balfour, "is to shatter the British Army before the American weight can be brought into the scale. The German inspired press has been instructed by its masters to show the utmost contempt for the American military effort. But the masters do not share that contempt. They are planning their whole campaign and and are sacrificing men with reckless extravagance in order that the American help may arrive after their blow has been struck."

In proposing a toast to the allied cause, Mr. Balfour said:

"The speeches which we have just listened to would have convinced any doubter, if such exists elsewhere, that the spirit in which the United States of America have thrown themselves into this great struggle is a spirit of idealism—not an idealism that evaporates in eloquent, empty phrases and empty formulæ, but that idealism which recognizes that, to bring his ideals to fruition, one must make efforts and show those great sacrifices which now are being so surely demonstrated by our friends and brothers across the Atlantic.

"There was a moment before the facile success which Germany obtained against an unresisting enemy, an enemy in the East, when German statesmen and German members of parliament discussed public affairs in a way which would lead one to suppose that Germany was in a high way to

democratic institutions and to heartfelt adoption of the four principles which President Wilson has made famous throughout the world.

"They now almost cynically admit that the resolution of the Reichstag, of which we have heard so much, all the talk of no annexations and no indemnities, of considering the wishes of subject populations, of spreading the principles of security and freedom throughout the world, was what we sometimes call camouflage."

"Germany now stands forth undisguised as a robber state," declared Mr. Balfour. "How is she going to carry out her robbery so far as her internal politics are concerned? Her methods are simple. If things are going wrong, or are not going as well as her optimists expected, then they tell the German public:

"'You must fight on because the powers against whom you are fighting desire nothing less, and will be content with nothing less than the total destruction of your country.'

"An absolute falsehood! The destruction of Germany has never been an allied aim, and is desired, so far as I know, by no sane man in the whole civilized world.

"But if things are going well that argument is put aside and a new one comes in. They explain that all these attacks upon the constitution of Germany, all this talk about Germany not being a land of freedom, with the representative institutions of democracy as we in the West understand them, are quite true. But then they say: 'A democratic government would never have given you an empire such as the military authorities and the headquarters staff have given you. We are the headquarters staff. We are the military authority. We are the true upholders of the Prussian ideals.

"'Look at what we are giving you. We are going to give you domination over the whole of Europe. You have practically control over the independent states all along our eastern border. We are going to give you a free pathway to the illimitable riches of the East. We are going to turn France into a second-rate power. Britain is to follow, America is to follow Britain, and Germany is to be the Colossus which bestrides the world, without a rival and hardly a critic.'"—*Baltimore Sun*, 16/4.

FLIES OVER THE ANDES.—Buenos Aires, April 15.—Lieutenant Cendelaria, of the Argentine Army, to-day crossed the Andes by airplane from Zapala, Argentina, to Curico, Chile, a distance of 180 kilometers. The machine crossed the mountains at an altitude of 3200 meters.

This is the first recorded crossing of the Andes by airplane. On June 24, 1916, a balloon operated by Captain Zuloaga and Engineer Bradley, crossed the Andes from Santiago, Chile, to Uspallata, Argentina.—*Baltimore Sun*, 16/4.

CHARLES M. SCHWAB DRAFTED TO DIRECT WAR SHIPBUILDING.—Charles M. Schwab, the steel master of the world, to-day answered the call of the nation to take full charge of war shipbuilding in the United States. At the request of President Wilson he accepted the newly-created post of Director General of the Emergency Fleet Corporation, with almost unlimited funds to construct a gigantic merchant fleet so vital to the winning of the war.

"Build ships," Mr. Wilson directed. "We will do the rest."

Mr. Schwab will drop all his other work to serve the government. He will be unhampered in the direction of construction which now is going on in 130 shipyards throughout the country.

The White House announced the appointment of Mr. Schwab this afternoon after a conference between the President, Mr. Schwab, Edward N. Hurley, chairman of the shipping board; Bainbridge Colby, a member of the board, and Charles Piez, vice-president and general manager of the Emergency Fleet Corporation.

Here is the statement, issued by Joseph P. Tumulty, secretary to the President:

"Edward N. Hurley, Charles M. Schwab, Bainbridge Colby and Charles Piez were received by the President at the White House to-day. It was stated that the subject discussed was the progress and condition of the national shipbuilding program. The carrying forward of the construction work is so vast that it requires a reinforcement of the shipbuilding organization throughout the country.

"Later in the day, Mr. Hurley, chairman of the shipping board, announced that a new office, with wide powers, had been created by the trustees of the Emergency Fleet Corporation. The new position is that of director general and Mr. Schwab has been asked and has agreed to accept this position in answer to the call of the nation.

"Charles Piez, vice-president of the Emergency Fleet Corporation, recommended that the post of general manager of the corporation be at once abolished so that Mr. Schwab as director general should be wholly unhampered in carrying out the large task entrusted to him. Mr. Piez, since the retirement of Admiral Harris, has been filling both the position of vice-president and that of general manager.

"Mr. Schwab will have complete supervision and direction of the work of shipbuilding. He agreed to take up the work at the sacrifice of his personal wishes in the matter. His services were virtually commandeered. His great experience as a steel maker and builder of ships has been drafted for the nation."

The selection of Mr. Schwab is hailed throughout official Washington, to-night, as a master stroke. Admittedly at the head of the largest steel producing organization in the world and employer of more than 130,000 men in many different plants, he will have a tremendous advantage in getting material for construction. He is in the confidence of the most important capitalists in the country; he is a man of wonderful energy and ability in organization.

Mr. Schwab will devote himself to building ships exclusively. He will be in the field most of the time speeding up his production. He will give the orders directly. Every bit of authority will be in his hands.

Mr. Schwab is to take up the shipbuilding program as he found it, providing for the construction of steel and wooden vessels. There will be no loss, therefore, in discussion of new ideas. The foundation for a fleet already is laid. The thing now to be done, Mr. Schwab agrees, is to turn out vessels as quickly as possible.

The idea of calling in the services of Mr. Schwab developed last Friday, and the question was broached to him Sunday. But he did not decide to accept until afternoon to-day at a meeting of the trustees of the Emergency Fleet Corporation. At that meeting with the trustees he demonstrated strikingly his determination to round out an efficient, harmonious organization. The trustees sat around a table telling Mr. Schwab what they hoped he would do. When he heard it all he arose from his chair and pointed his finger at each in turn.

"Will you help, Mr. Hurley?" he asked.

"Yes," replied the chairman.

"Will you help, Mr. Donald?" addressing James A. Donald, a member of the board and one of the trustees.

"Yes," said Mr. Donald.

So he went around the table, receiving a pledge from each.

"All right," Mr. Schwab announced. "I'll take the job if the President desires."

The idea of calling for Mr. Schwab came at a conference between Mr. Hurley and Mr. Piez last Friday over the necessity of obtaining help from "some of the biggest men in the country" to speed up the lagging building program.

"We need somebody like Schwab," said Mr. Piez.

"Why not Schwab?" asked Mr. Hurley.

Mr. Schwab arrived in Washington Sunday morning. He had luncheon with Mr. Hurley at his residence, and Mr. Hurley asked him to take the place. Mr. Schwab said he would like to serve the government, but that he felt that before giving an answer he would have to confer with his business associates. He did that Monday, arriving here to-day for the final arrangements. He returned to New York City to-night, but will be back again on Thursday to go to work.

Throughout the negotiations there was not one word of salary. But Mr. Schwab will receive at least $1 a year from the government for his services, under the rule that the government cannot accept anything without pay.—*N. Y. Herald*, 17/4.

MODIFICATION OF REQUIREMENTS FOR SEA DUTY.—In a communication to Congress, Secretary Daniels said that unless the law requiring two years' sea duty before a naval officer can receive promotion is modified great injury will be done the administration of the Navy Department. He called attention to the fact that many officers, whose services in war are indispensable at their present assignments in the department will seek sea duty in order to obtain the promotion that is due them unless the law is changed.—*Official Bulletin*, 17/4.

FIRST HUN CAPTIVES REACH THIS COUNTRY.—An Atlantic Port, April 16.—The first German prisoners of war arrived in the United States to-day. They are members of the crew of the submarine *U-58*, which was sunk by an American destroyer. The prisoners are to be interned.

Their exact number was not given out, but it is believed there are about 20.

With the War Department taking over for the navy the *U-58* prisoners captured by the destroyer *Fanning* there still remains the problem of whether or not General Pershing's prisoners shall be brought back here. A decision on this point is expected soon, but meantime the Teutons taken by the Yankees remain in French prison camps.

That some complaints of German food and camp conditions have come from American prisoners in Germany became known to-day. Some of the men reported that they did not have enough blankets, while others said they were given either poor quality food or little of it. International law requires a nation to feed its prisoners as it feeds its own soldiers. This Germany is not doing, though the United States is scrupulously observing that regulation. Now America purposes that the interned sailors and other prisoners already on hand and the *U-58* men coming here shall work for their "chow."

To relieve American prisoners in Germany from poor or insufficient food, the United States Government has established the same system as the British, feeding the prisoners herself. This is done through a committee at Berne, Switzerland. This committee supplies food packets now. The camps where Americans are detained are inspected regularly by Spanish Embassy agents, who take up with Germany any complaints that German food instead of the American supplies is given the men. Three 10-pound packages of food are sent every two weeks and clothing is replenished every six months. Apparently the complaints of some prisoners have resulted from German substitution of made-in-Germany products for the American goods.—*Baltimore Sun*, 16/4.

BARON BURIAN TO SUCCEED CZERNIN.—Amsterdam, April 17.—Baron Burian has been appointed Austro-Hungarian Foreign Minister to succeed Count Czernin, according to a Vienna dispatch.

Baron Stephen Burian von Rajecz was Minister of Foreign Affairs from September 15, 1914, to December 23, 1916, when he was succeeded by Count

Czernin, whose place he now takes. Baron Burian has been Austro-Hungarian Finance Minister since Count Czernin has been in the Foreign Office.

Baron Burian took the place of Count Berchtold as Foreign Minister in 1914 and he was the author of the notes to the United States on the case of the Italian steamship *Ancona*, sunk in the Mediterranean with the loss of American lives in the fall of 1915.

Creates Sensation.—Basel, Switzerland, April 17.—The tone of the Austrian and German press indicates that a profound impression has been caused in those countries by the downfall of Count Czernin. The German people and the German element in Austria resent the retirement of the minister, and after his resignation was announced they began a vigorous campaign for the appointment as his successor of former Premier Tisza, Count Andrassy or another Hungarian whose views agree with theirs.

The same elements which deplore the fall of Count Czernin are beginning to attack the German Foreign Minister, Dr. von Kuehlmann, on the pretext that he did not protect Germany's economic interests sufficiently in the treaty of Brest-Litovsk.—*Baltimore News*, 17/4.

NINE HUNDRED REVOLUTIONISTS HEAD FOR COSTA RICA FROM NICARAGUA PORT.—San Juan Del Sur, Nicaragua, Monday.—A telegram from La Cruz, on the Costa Rican frontier, reports news has been received there of the departure from Panama of a steamship carrying troops to assist in the revolutionary outbreak which recently was begun in Costa Rica.

According to this account, there are on board the vessel 900 fully equipped Costa Rican revolutionists, under command of Jorge Vilio, the rebel leader, and they are expected to make an early attempt at a landing.—*N. Y. Herald*, 8/4.

COSTA RICA CONGRESS DECLARES MARTIAL LAW.—San Jose, Costa Rica, Sunday (Delayed).—The Costa Rican Congress has proclaimed martial law in connection with the revolutionary outbreak on the southern border and the government is taking necessary steps to capture or disband the rebels.

It was thought that Jorge Vilio, the rebel leader, who is a priest, and his followers had been disarmed by the Panama Government.—*N. Y. Herald*, 8/4.

INDEX OF WAR VESSEL LOSSES MENTIONED IN THIS NUMBER

NOTE.—A complete table of losses since the beginning of the war will be published semi-annually; the latest appears in the January number of the PROCEEDINGS.

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Destroyer 1148
Destroyer 1148

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UNITED STATES VESSELS

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DIPLOMATIC NOTES

FROM MARCH 18 TO APRIL 18

PREPARED BY

ALLAN WESTCOTT, PH. D., Instructor, U. S. Naval Academy

PRESIDENT WILSON'S BALTIMORE SPEECH

On April 6, President Wilson delivered an important speech in Baltimore, in which he declared that the true aims and methods of the Central Powers were revealed not by their diplomats, but by their military leaders, and that force alone can bring peace. The speech follows in full:

Fellow citizens: This is the anniversary of our acceptance of Germany's challenge to fight for our right to live and be free, and for the sacred rights of free men everywhere. The nation is awake. There is no need to call to it. We know what the war must cost, our utmost sacrifice, the lives of our fittest men and, if need be, all that we possess. The loan we are met to discuss is one of the least parts of what we are called upon to give and to do, though in itself imperative. The people of the whole country are alive to the necessity of it, and are ready to lend to the utmost, even where it involves a sharp skimping and daily sacrifice to lend out of meager earnings. They will look with reprobation and contempt upon those who can and will not, upon those who demand a higher rate of interest, upon those who think of it as a mere commercial transaction. I have not come, therefore, to urge the loan. I have come only to give you, if I can, a more vivid conception of what it is for.

The reasons for this great war, the reason why it had to come, the need to fight it through, and the issues that hang upon its outcome, are more clearly disclosed now than ever before. It is easy to see just what this particular loan means because the cause we are fighting for stands more sharply revealed than at any previous crisis of the momentous struggle. The man who knows least can now see plainly how the cause of justice stands and what the imperishable thing is he is asked to invest in. Men in America may be more sure than they ever were before, that the cause is their own, and that, if it should be lost, their own great nation's place and mission in the world would be lost with it.

I call you to witness, my fellow countrymen, that at no stage of this terrible business have I judged the purposes of Germany intemperately. I should be ashamed in the presence of affairs so grave, so fraught with the destinies of mankind throughout all the world, to speak with truculence, to use the weak language of hatred or vindictive purpose. We must judge as we would be judged. I have sought to learn the objects Germany has in this war from the mouths of her own spokesmen, and to deal as frankly with them as I wished them to deal with me. I have laid bare our own ideals, our own purposes, without reserve or doubtful phrase, and have asked them to say as plainly what it is that they seek.

We have ourselves proposed no injustice, no aggression. We are ready, whenever the final reckoning is made, to be just to the German people, deal fairly with the German power, as with all others. There can be no difference between peoples in the final judgment, if it is, indeed to be a righteous judgment. To propose anything but justice, even-handed and dispassionate justice, to Germany at any time, whatever the outcome of the war, would be to renounce and dishonor our own cause. For we ask nothing that we are not willing to accord.

It has been with this thought that I have sought to learn from those who spoke for Germany, whether it was justice or dominion and the execution of their own will upon the other nations of the world, that the German leaders were seeking. They have answered, answered in unmistakable terms. They have avowed that it was not justice but dominion and the unhindered execution of their own will.

The avowal has not come from Germany's statesmen. It has come from her military leaders, who are her real rulers. Her statesmen have said that they wished peace and were ready to discuss its terms whenever their opponents were willing to sit down at the conference table with them. Her present chancellor has said—in indefinite and uncertain terms, indeed, and in phrases that often seem to deny their own meaning, but with as much plainness as he thought prudent—that he believed that peace should be based upon the principles which we had declared would be our own in the final settlement.

At Brest-Litovsk her civilian delegates spoke in similar terms; professed their desire to conclude a fair peace and accord to the peoples with whose fortunes they were dealing, the right to choose their own allegiances. But action accompanied and followed the profession. Their military masters—the men who act for Germany and exhibit her purpose in execution—proclaimed a very different conclusion.

We cannot mistake what they have done—in Russia, in Finland, in the Ukraine, in Roumania. The real test of their justice and fair play has come. From this we may judge the rest. They are enjoying in Russia a cheap triumph in which no brave, or gallant nation can long take pride. A great people, helpless by their own act, lies for the time at their mercy. Their fair professions are forgotten. They nowhere set up justice, but everywhere impose their power and exploit everything for their own use and aggrandizement; and the peoples of conquered provinces are invited to be free under their dominion!

Are we not justified in believing that they would do the same things at their western front if they were not there face to face with armies whom even their countless divisions cannot overcome? If, when they have felt their check to be final, they should propose favorable and equitable terms, with regard to Belgium, France and Italy, could they blame us if we concluded that they did so only to assure themselves of a free hand in Russia and the East?

Their purpose is undoubtedly to make all the Slavic peoples, all the free and ambitious nations of the Baltic peninsula, all the lands that Turkey has dominated and misruled, subject to their will and ambition, and build upon that dominion an empire of force upon which they fancy that they can then erect an empire of gain and commercial supremacy—an empire as hostile to the Americas as to the Europe which it will overawe—an empire which will ultimately master Persia, India and the peoples of the Far East.

In such a program our ideals, the ideals of justice and humanity and liberty, the principle of the free self-determination of nations upon which all the modern world insists, can play no part. They are rejected for the ideals of power, for the principle that the strong must rule the weak, that trade must follow the flag, whether those to whom it is taken welcome it or not, that the peoples of the world are to be made subject to the patronage and overlordship of those who have the power to enforce it.

That program once carried out, America and all who care or dare to stand with her must arm and prepare themselves to contest the mastery of the world, a mastery in which the rights of common men, the rights of women and of all who are weak, must for the time being be trodden under foot and disregarded, and the old, age-long struggle for freedom and right begin at its beginning. Everything that America has lived for and loved and grown great to vindicate and bring to a glorious realization will have fallen in utter ruin, and the gate of mercy once more pitilessly shut upon mankind!

The thing is preposterous and impossible; and yet is not that what the whole course and action of the German armies has meant wherever they have moved? I do not wish, even in this moment of utter disillusionment, to judge harshly or unrighteously. I judge only what the German arms have accomplished with unpitying thoroughness throughout every fair region they have touched.

What, then, are we to do? For myself, I am ready, ready still, ready even now, to discuss a fair and just and honest peace at any time that it is sincerely purposed,—a peace in which the strong and the weak shall fare alike. But the answer, when I proposed such a peace, came from the German commanders in Russia, and I cannot mistake the meaning of the answer.

I accept the challenge. I know that you accept it. All the world shall know that you accept it. It shall appear in the utter sacrifice and self-forgetfulness with which we shall give all that we love and all that we have to redeem the world, and make it fit for free men like ourselves to live in.

This now is the meaning of all that we do. Let everything that we say, my fellow countrymen, everything that we henceforth plan and accomplish, ring true to this response till the majesty and might of our concerted power shall fill the thought and utterly defeat the force of those who flout and misprize what we honor and hold dear. Germany has once more said that force, and force alone, shall decide whether justice and peace shall reign in the affairs of men, whether right as America conceives it or dominion as she conceives it shall determine the destinies of mankind.

There is, therefore, but one response possible from us: Force, Force to the utmost, Force without stint or limit, the righteous and triumphant Force which shall make right the law of the world, and cast every selfish dominion down in the dust.

A GERMAN COMMENTARY.—Amsterdam, April 7.—A semi-official statement was issued in Berlin to-day commenting on the speech made by President Wilson at Baltimore, on Saturday night. It says:

"President Wilson turns the historical events upside down. The world knows that the gigantic struggle now being fought in the west is a consequence of the will of the Entente for war.

"President Wilson now calls for force to the utmost, and, in so doing, at last clearly describes the policy of the Americans and their allies; namely: force against everything that opposes them. Germany will not suffer from this yoke of force.

"Mr. Wilson's speech is a propaganda speech for the new Amercan war loan. It is the best possible propaganda for our own loan, since it shows what it would mean for Germany to lose the war."—*N. Y. Times*, 8/4.

GERMANY WANTS FRENCH IRON DISTRICTS.—The Hague, April 10.—There has been a marked change among the German political leaders who passed the famous Reichstag peace resolution, and apparently the Socialist Party as such, has been unable to withstand the pressure of German labor opinion, which for some months has repeatedly given voice to its anger over the unconciliatory spirit of the Entente Powers.

Men who a few months ago would not listen to any annexation plans admit to-day that compensation in some form must be exacted by a "victorious Germany." They justify the change of opinion by reminding the people that Dr. Hertling and Count Czernin have both stated repeatedly that if Germany's peace offers were disregarded by the enemy, the Central Powers would not feel pledged to peace without compensations and annexations.

Much of this change in the public mind has been brought about by the menace of a commercial and industrial war after the world war, and in this respect America's attitude probably has been most effective. The people take it for granted that the Central Powers will end the war victoriously in a military way.

Germany's captains of industry insist that Briey and Longwy, besides a strip of French land wide enough to protect the iron mines from hostile guns in any future war, be incorporated into the German Empire. Borsig, chief of the famous house of August Borsig, writes in the *Vossische Zeitung* that the menace of economical war after the war, as decided on by the Paris conference, has made it imperative for German industry to seek independent sources of raw products.

"The deposits of iron ore in Longwy and Briey," Borsig says, "would make us quite independent of any importation of raw material. We could spare even the Swedish ore. Even if we were to treat France leniently and generously leave her in possession of those districts we have no security that she will serve us likewise.

"The iron industry is a wonderful, great tree in the midst of the field of the German industry. Its roots are the supply of raw products, its trunk, the iron mills and steel works, upon which spread flourishing branches of many-sided industry. During the war it has been very difficult to keep this splendid tree alive, for half its roots extend to foreign countries. This tree has been growing close to the German border line. If we want to secure it we must take enough territory to make sure that in the future its roots need not wander beyond the German frontier."—*N. Y. Times*, 10/4.

RUSSIA'S FATE IN GERMAN HANDS.—The open boast that the entire future of Russia lies in the hands of Germany, to mold as she pleases, is made in the German press. Georg Bernhard, in the Berlin *Vossische Zeitung*, thus views the infinite possibilities of Russia:

"We still hold to the view that there can be no question of permanent chaos and dissolution in Russia. The correctness of this view finds support in the fact that the Ukrainians also do not believe in such a development. Despite all the recent rumors spread in Germany, the Ukrainians are still firm in their resolve to form a federal republic with the rest of Russia after the fall of the Bolshevik régime. If this hope is fulfilled, then all the other Russian republics which have been formed during the Bolshevik era will crystallize round this kernel. Thus there will be a large and powerful Russia for all time. Those who accept this view must reach the logical conclusion not to impose any conditions for future peace such as might permanently cloud the relation between the new Russia and Germany. One may submit to the necessity of military guaranties, but one must unhesitatingly reject any forcible accession of territory in excess of this.

"It is, of course, quite another matter if we adopt the view of many people in Germany, who believe in the permanent break-up of Russia. Then arises the danger of independent frontier states, with which Germany must establish close contact, especially if one believes in the possiblity of their being influenced by England. In all this, it is true, one must never overlook the fact that the future fate of Russia, and also the relation of Japan to Russia and Germany lie in our hands. This becomes very clear when we consider the general Peace Congress and the rôle which England will play there. Germany may find very considerable surprises there unless she secures the alliance of the future Russian Government at the green table against England. What enters the Congress Hall we shall know, but who shall prophesy what will finally come out of it?"—*Literary Digest*, 6/4.

COUNT CZERNIN ON PEACE PROSPECTS

Speaking to a deputation of the Vienna City Council on April 2, Count Czernin took opportunity to review the political situation. He declared he had "much too high an opinion of Mr. Wilson's statesmanship" to suppose that Mr. Wilson would attempt to drive a wedge between Vienna

and Berlin. Possibly, however, Mr. Wilson considered Vienna "more favorable soil for sowing the seeds of a general peace." After referring to the "admirable speech" made by the German Chancellor on Mr. Wilson's four peace principles, Count Czernin continued as follows:

"President Wilson's four points are a suitable basis upon which to begin negotiating about a general peace. The question is whether or not Mr. Wilson will succeed in uniting his allies upon this basis.

"God is my witness that we have tried everything possible to avoid a new offensive. The Entente would not have it. A short time before the beginning of the offensive in the west, M. Clemenceau inquired of me whether and upon what basis I was prepared to negotiate. I immediately replied, in agreement with Berlin, that I was ready to negotiate, and that, as regards France, I saw no other obstacle for peace than France's desire for Alsace-Lorraine.

"The reply from Paris was that it was impossible to negotiate on that basis. There was then no choice left.

"The gigantic struggle in the west has already begun. Austro-Hungarian and German troops are fighting shoulder to shoulder as they did in Russia, Serbia, Rumania, and Italy. We are fighting united for the defence of Austria-Hungary and Germany. Our armies will show the Entente that French and Italian aspirations to portions of our territory are Utopias which will be terribly avenged.

"The explanation of this attitiude of the Entente Powers, which verges on lunacy, is to a great extent to be sought in certain domestic events here, to which I shall return later. Whatever may happen, we shall not sacrifice German interests any more than Germany will desert us. Loyalty on the Danube is not less than German loyalty. We are not fighting for imperialist or annexationist ends, either for ourselves, or for Germany, but we shall act together to the end for our defence, for our political existence and for our future.

"The first breach in the determination of our enemies to war has been driven by the peace negotiations with Russia. That was a break-through by the idea of peace.

"It is a symptom of childish dilettantism to overlook the close relationship of the various peace signatures with each other. The constellation of enemy powers in the East was like a net. When one mesh was cut through the remaining meshes loosened of their own accord."

Count Czernin then outlined the Rumanian peace terms, explaining that while from Russia he "did not demand a single meter, Rumania neglected the favorable moment." Protection of merchant shipping in the Danube, and guarding of the iron gate was to be secured by an extension of the frontier and leases for certain wharves and islands, while the frontier was advanced from 15 to 18 kilometers elsewhere as military reasons required.

"Rumania's future," the Foreign Minister continued, "lies in the east. Large portions of Bessarabia are inhabited by Rumanians, and there are many indications that the Rumanian population there desires close union with Rumania. If Rumania will adopt a frank, cordial, friendly attitude toward us we will have no objections to meeting those tendencies in Bessarabia. Rumania can gain much more in Bessarabia than she lost in the war."

Count Czernin said that he was anxious that the rectifications of the frontier should not leave any embitterment behind, and expressed the opinion that Rumania in her own interest must turn to the Central Powers.

"In concluding peace with Rumania and Ukraine," he continued, "it has been my first thought to furnish the monarchy with foodstuffs and raw materials. Russia did not come into consideration in this connection owing to the disorganization there.

"We agreed with Ukraine that the quantity of grain to be delivered to the Central Powers should be at least 1,000,000 tons. Thirty cars of grain and peas are now en route, 600 cars are ready to be transported, and these transports will be continued until the imports are organized and can begin regularly. Larger transports are rendered possible by the peace with Rumania, which enables goods to be sent from Odessa to Danube ports.

"We hope during May, to undertake the first large transport from Ukraine. While I admit that the imports from Ukraine are still small and must be increased, nevertheless our food situation would have been considerably worse had this agreement not been concluded.

"From Rumania we will obtain a considerable surplus of last year's harvest. Moreover, about 400,000 tons of grain, peas, beans, and fodder must be transported via the Danube. Rumania must also immediately provide us with 800,000 sheep and pigs, which will improve our meat supply slightly.

"It is clear from this that everything will be done to obtain from the exploitation of the regions, which peace has opened for us in the east, whatever is obtainable. The difficulties of obtaining these supplies from Ukraine are still considerable, as no state of order exists there. But with the good will of the Ukrainian Government and our organization we will succeed in overcoming the difficulties.

"An immediate general peace would not give us further advantages as all Europe to-day is suffering from lack of foodstuffs. While the lack of cargo space prevents other nations from supplying themselves, the granaries of Ukraine and Rumania remain open to the Central Powers."

Replying to the annexationists, Count Czernin said:

"The forcible annexation of foreign peoples would place difficulties in the way of a general peace, and such an extension of territories would not strengthen the empire. On the contrary, considering the grouping of the monarchy, they would weaken us. What we require is not territorial annexations, but economic safeguards for the future.

"We wish to do everything to create in the Balkans a situation of lasting calm. Not until the collapse of Russia did there cease to exist the factor which hitherto made it impossible for us to bring about a definite state of internal peace in the Balkans.

"We know that the desire for peace is very great in Serbia, but Serbia has been prevented by the Entente Powers from concluding it. Bulgaria must receive from Serbia certain districts inhabited by Bulgarians. We, however, have no desire to destroy Serbia. We will enable Serbia to develop, and we would welcome closer economic relations with her.

"We do not desire to influence the future relations between the monarchy and Serbia and Montenegro by motives conflicting with friendly, neighborly relations. The best state of egoism is to come to terms with a beaten neighbor, which leads to this: My egoism regarding Austria-Hungary is that after being conquered militarily our enemies must be conquered morally. Only then is victory complete, and in this respect diplomacy must finish the work of the armies.

"Since I came into office, I have striven only after one aim, namely to secure an honorable peace for the monarchy and to create a situation which will secure to Austria-Hungary future free development, and, moreover, to do everything possible to ensure that this terrible war shall be the last one for time out of mind. I have never spoken differently. I do not intend to go begging for peace, or to obtain it by entreaties or lamentations, but to enforce it by our moral right and physical strength. Any other tactics, I consider, would contribute to the prolongation of the war.

"I must say, to my regret, that during the last few weeks and months much has been spoken and done in Austria that prolongs the war. Those who are prolonging the war are divided into various groups, according to their motives and tactics. There are, firstly, those who continuously beg for peace. They are despicable and foolish. To endeavor to conclude peace

at any price is despicable, for it is unmanly, and it is foolish because it continuously feeds the already dying aggressive spirit of the enemy. The desire for peace of the great masses is natural as well as comprehensible, but the leaders of the people must consider that certain utterances produce abroad just the opposite effect from what they desire.

"Firmly relying on our strength and the justice of our cause, I have already concluded three moderate, but honorable, peace treaties. The rest of our enemies also begin to understand that we have no other desire than to secure the future of the monarchy and of our allies, and that we intend to enforce this, and can and will enforce it. I shall unswervingly prosecute this course and join issue with any one who opposes me.

"The second group of war prolongers are the annexationists. It is a distortion of fact to assert that Germany has made conquests in the East. Lenine's anarchy drove the border people into the arms of Germany. Is Germany to refuse this involuntary choice of foreign border states?

"The German Government has as little desire for oppressions as we, and I am perfectly convinced that neither annexationists nor weaklings can prevent forever a moderate, an honorable peace. They delay it, but they cannot prevent it.

"The hopes of our enemies of final victory are not merely based on military expectations and the blockade. They are based to a great extent on our interior political conditions and on certain political leaders, not forgetting the Czechs. Recently we were almost on the point of entering into negotiations with the Western Powers, when the wind suddenly veered round and, as we know with certainty, the Entente decided it had better wait, as parliamentary and political events in our country justified the hope that the monarchy would soon be defenseless."

Count Czernin attacked the Czech leaders and Czech troops, who, he declared, "criminally fight against their own country," and appealed to the people to be united against this "high treason."

The government, he said, was quite ready to proceed to the revision of the Constitution, but this would not be helped by those who hoped through the victory of the Entente to gain their ends.

"If we expel this poison," he declared, "a general honorable peace is nearer than the public imagines, but no one has the right to remain aside in this last decisive struggle."

PEACE TALK OF LAST SUMMER

Count Czernin's reference, in his speech of April 2, to earlier secret peace negotiations, aroused keen interest both in Berlin and in allied capitals. Asked to explain alleged offers from France, Premier Clemenceau replied briefly that "Czernin lied."

On April 5, an official announcement was made in Vienna to the effect that Count Revertata, counselor of the Austrian legation in Switzerland, had held conversations in February, 1918, with Count Armand, an agent of M. Clemenceau. Count Revertata was instructed to suggest that a general peace was possible provided France renounced Alsace-Lorraine. The reply from M. Clemenceau was unfavorable.

Later statements from Paris on April 6, and Vienna on April 8, brought out that the interviews between the two agents had taken place during June, July, and August, 1917, in Switzerland, and later at Revertata's residence in Freiburg. Neither the fact of the interviews nor the negative result was disputed, but merely the question as to which side had taken the initiative.

As a result of the disclosures, the Emperor Charles of Austria on April 11 sent a message of reassurance to Emperor William, as follows:

"The French Premier, driven into a corner, is endeavoring to escape from the net in which he has entangled himself by piling up more and more untruth, and he does not hesitate to make the completely false statement that I recognized that France had a just claim to the reacquisition of Alsace-Lorraine. I disavow this assertion with indignation.

"At the moment when Austro-Hungarian cannon are thundering jointly with German cannon on the western front, it hardly needs proof that I am fighting for these provinces, and I am ready to continue fighting exactly as if it were a question of defending my own land.

"Although, in face of this eloquent proof and the full community of aims, for which almost four years we have been waging war, I consider it superfluous to waste even a word on Premier Clemenceau's false assertion, I desire, nevertheless, to take this opportunity of again assuring you of the complete solidarity which exists between you and me and your empire and mine.

"No intrigues, no attempts, from whomsoever they may proceed, will imperil our loyal comradeship of arms, and we shall jointly enforce an honorable peace."

EMPEROR CHARLES ON "JUST CLAIMS OF FRANCE."—Following close upon the Emperor's letter to the Kaiser, the French Government on April 11, published the following letter from Charles to Prince Sixtus de Bourbon, the only explanation of which afterward made by Austria was that the letter bearing the Emperor's signature must have been garbled in transmission:

Once caught in the cogwheels of lying, there is no means of stopping. Emperor Charles, under Berlin's eye, is taking on himself the lying denials of Count Czernin, and thus compels the French Government to supply the proof. Herewith is the text of an autograph letter communicated on March 31, 1917, by Prince Sixtus de Bourbon, the Emperor of Austria's brother-in-law, to President Poincaré, and communicated immediately, with the Prince's consent, to the French Premier:

"*My Dear Sixtus:* The end of the third year of this war, which has brought so much mourning and grief into the world, approaches. All the peoples of my empire are more closely united than ever in the common determination to safeguard the integrity of the monarchy at the cost even of the heaviest sacrifices.

"Thanks to their union, with the generous co-operation of all nationalities, my empire and monarchy have succeeded in resisting the gravest assaults for nearly three years. Nobody can question the military advantages secured by my troops, particularly in the Balkans.

"France, on her side, has shown force, resistance, and dashing courage, which are magnificent. We all unreservedly admire the admirable bravery, which is traditional to her army, and the spirit of sacrifice of the entire French people.

"Therefore it is a special pleasure to me to note that, although for the moment adversaries, no real divergence of views or aspirations separates many of my empire from France, and that I am justified in hoping that my keen sympathy for France, joined to that which prevails in the whole monarchy, will forever avoid a return of the state of war, for which no responsibility can fall on me.

"With this in mind, and to show in a definite manner the reality of these feelings, I beg you to convey privately and unofficially to President Poincaré that I will support by every means, and by exerting all my personal influence with my allies, France's just claims regarding Alsace-Lorraine.

"Belgium should be entirely re-established in her sovereignty, retaining entirely her African possessions without prejudice to the compensations she should receive for the losses she has undergone.

"Serbia should be re-established in her sovereignty and, as a pledge of our good-will, we are ready to assure her equitable natural access to the Adriatic, and also wide economic concessions in Austria-Hungary. On her side, we will demand, as principal and essential conditions, that Serbia cease in the future all relation with, and suppress every association or group whose political object aims at the disintegration of the monarchy, particularly the Serbian Political Society, Narodni Ochrana; that Serbia loyally and by every means in her power prevent any kind of political agitation, either in Serbia or beyond her frontiers, in the foregoing direction, and give assurances thereof under the guarantee of the Entente Powers.

"The events in Russia compel me to reserve my ideas with regard to that country until a legal definite government is established there.

"Having thus laid my ideas clearly before you, I would ask you in turn, after consulting with these two powers, to lay before me the opinion of France and England, with a view thus to preparing the ground for an understanding on the basis of which official preliminary negotiations could be taken up and reach a result satisfactory to all.

"Hoping that thus we will soon be able, together, to put a limit to the sufferings of so many millions of men and families now plunged in sadness and anxiety, I beg to assure you of my warmest and most brotherly affection.

CHARLES."

The French note adds:

"Count Czernin, having recognized by his note of April 8, the existence of this negotiation due to the initiative of a personage of 'a rank far above his,' the Austrian Government is now summoned to give an explanation of the 'attempt' avowed by it and of the details of the conversation of its delegates."

RESIGNATION OF COUNT CZERNIN.—Count Czernin, Austro-Hungarian Foreign Minister, resigned on April 15. His resignation was undoubtedly connected with the awkward position in which Austria was placed by the controversy with France, and the publication of the Emperor's letter to Prince Sixtus; evidence indicated that his downfall was forced by Berlin.

BARON BURIAN MADE FOREIGN MINISTER.—Confirmation of the appointment of Baron Burian to succeed Count Czernin, as Austro-Hungarian Foreign Minister, was received by the State Department on April 17.

Baron Stephan Burian von Rajecz was Austro-Hungarian Minister of Foreign Affairs from September 15, 1914, to December 23, 1916, when he was succeeded by Count Czernin, whose place he now takes. Baron Burian has been Finance Minister since Count Czernin has been in the Foreign Office. He took the place of Count Berchtold as Foreign Minister in 1914, and was the author of the notes to the United States on the case of the Italian steamship *Ancona*, sunk in the Mediterranean with the loss of American lives in the fall of 1915.

Burian has been regarded by officials here as more friendly to America in the past than any of the other statesmen of the Dual Monarchy.—*N. Y. Times*, 8/4.

ITALY AND JUGO-SLAVS IN AGREEMENT.—A quiet modification of Italy's war aims has apparently been made, particularly with reference to the Jugo-Slavs. The *New Europe* announces that an agreement has been reached by representatives of the two nations, though it has not yet been ratified in Rome. In February, it was strongly intimated in Prime Minister Orlando's

name that Italy was ready to revise her "finality," as embodied in the secret treaty of 1915, and to adjust herself to "the new and real situation." Powerful Italian newspapers, the *Secolo*, the *Messaggero*, and the *Corriere Della Sera*, advocated this change of front, though the organ of Sonnino, the Foreign Minister, continued to oppose it. The actual result of the controversy and the negotiations must be awaited, but it is interesting to note that the mere report of an accord between Italy and the Jugo-Slavs, led to open advocacy in the Austrian Reichsrat of independence for all Slavs within the Dual Monarchy. And this heightened the demands and kindled the hopes of the Czechs in Bohemia. Here we have a hint of those "domestic matters" on which Count Czernin dwelt with so much concern in his recent Orphic speech in Vienna.—*N. Y. Nation*, 11/4.

GREAT BRITAIN

LLOYD GEORGE'S SPEECH OF APRIL 9.—On April 9, Premier Lloyd George addressed the House of Commons on the crisis in the military situation, announcing the purpose of the government to introduce bills for conscription in Ireland and for putting at the disposal of the government every able-bodied man up to 50, and in some cases 54 years old. The speech dealt fully and frankly with the military situation. Among other points, it was stated that at the outbreak of the March offensive the Germans were slightly inferior to the Allies in all branches of the service, though approximately equal in infantry; that the location, strength and degree of the Amiens attack had been accurately predicted by General Sir Henry Wilson in January; that through the retirement of the 5th army, the situation was at one time very critical; that the consent of America to brigade her battalions with those of the Allies and the decision of the Versailles conference to place General Foch in supreme direction of the strategy of all the Allied armies on the western front, were essential to Allied success.

The part of the Premier's speech dealing with Irish conscription was as follows:

"I now come to the question of Ireland. When an emergency has arisen which makes it necessary to put men of 50 and boys of 18 into the army in the fight for liberty and independence—"

Joseph Devlin here interrupted—"and small nationalities."

The Premier resumed: "Especially, as I am reminded, to fight for liberty and independence and small nationalities, I am perfectly certain it is not possible to justify any longer the exclusion of Ireland."

John Dillon—"You will not get any men from Ireland by compulsion, not a man."

"What is the position?" continued Mr. Lloyd George. "No Home Rule proposal ever submitted in this House proposed to deprive the Imperial Parliament of the power of dealing with all questions in relation to the army and navy. These invariably are in every Home Rule bill I have ever seen and are purely questions for the Imperial Parliament, so that I am no more claiming any national right than was ever claimed in the House. The Defense of the Realm Act also was extended to Ireland.

"The character of the quarrel in which we are engaged is just as much Irish as English. May I say it is more so? It is more Irish, Scotch, and Welsh than it is even English. Ireland, through its representatives at the beginning of the war, assented to it."

Mr. Devlin here interjected—"Because it was a war for small nationalities."

The Prime Minister resuming: "Ireland, through its representatives, assented to the war, voted for the war, supported the war. Irish repre-

sentatives and Ireland, through its representatives, without a dissenting voice committed the empire to this war. They are as responsible for it as any part of the United Kingdom. May I just read the declaration issued by the Irish party on December 17, 1914, shortly after the war began?"

Mr. Byrne interrupted with: "We have had a revolution since then."

The Prime Minister, resuming: "This is the Declaration of the Irish Party: 'A test to search men's souls has arisen. The empire is engaged in the most serious war in history. It is a just war, provoked by the intolerable military despotism of Germany. It is a war for the defence of the sacred rights and liberties of small nations and the respect and enlargement of the great principles of nationality. Involved in it is the fate of France, our kindred country and the chief nation of that powerful Celtic race to which we belong; the fate of Belgium, to whom we are attached by the same great ties of race and by the common desire of small nations to assert their freedom, and the fate of Poland, whose sufferings and struggles bear so marked a resemblance to our own.

"'It is a war for the high ideals of human government and international relations, and Ireland would be false to her history and to every consideration of honor, good faith, and self-interest did she not willingly bear her share in its burdens and its sacrifices.'

"May I also refer to a speech delivered by the late John Redmond at Mansion House, Dublin, when he was addressing a recruiting meeting there. He said:

"'The heart of Ireland has been profoundly moved by the spectacle of the heroism and sufferings of Belgium. The other day in London, I met Cardinal Archbishop Mercier, and I took the liberty of promising him then that Ireland would bring her arms and her strength to avenge Louvain and to uphold and defend the integrity and independence of Belgium.'

"'Belgium, Poland, Alsace-Lorraine, and France. Those are words for the Irish people to think over. There never was a war in which higher and nobler issues were at stake. I have heard some people speak of this war as an English and not an Irish War. That is absolutely and definitely untrue. Ireland's highest imperial interests are at stake.'

"The fact that America is in this war is the best proof. There are more Irishmen in the United States than there are in Ireland. They are all subject to conscription."

Captain W. A. Redmond, son of the late Irish leader, interrupted: "Not by England!"

Mr. Lloyd George resumed: "Irishmen in Great Britain are subject to conscription and so are Irishmen in Canada. Mr. Redmond in addressing this House on the military service bill in 1916, said:

"'Let me state what is my personal view of this matter of compulsion. I am content to take the phrase used by the Prime Minister in his last speech, and I am prepared to say that I will stick at nothing which is calculated in order to win this war, and this is the view, I am certain, of the people of Ireland.'

"Then he was opposed to that particular bill. But he said that with him conscription was not a question of principle; it was purely a question of necessity for the raising of men. I think the member for Mayo (Mr. Dillon) took substantially the same view in a speech which he delivered at the same time. The member said:

"'We are now engaged in discussing an important political proposal for the country. Like the member for Waterford (Mr. Redmond), I view the thing from the point of necessity and expediency, and in particular circumstances. I would not hesitate to support conscription to-morrow if I thought it was necessary to maintain liberty, and if there was no conscription we ran the risk of losing the war.'"

Mr. Dillon interrupted: "That was conditional on Ireland having the liberty to decide her own fate, and if Irish liberty were at stake, I certainly would not hesitate to support conscription."

"I do not want to enter into a controversy as to what my friend meant," continued the Premier, "but that is what he conveyed to the House, and if he will take the trouble to read the speech, he will see that is the case. Mr. Redmond himself, on the third reading, in delivering his speech, put it on the ground that we were fighting for small nationalities."

"He found that was not true," was the interjection of Mr. Devlin.

Mr. Lloyd George went on: "The honorable member never challenged the justice of the war; on the contrary, he supported it, voted for it and supplies, and voted for the declaration of war."

"The Premier is going too far," interrupted Mr. Dillon. "I never challenged the justice of the war; I believed in the justice of the war and said so. I never voted for supplies, nor did any one else in this House, for the vote was never taken. I never challenged the justice of the war and I do not challenge it now. The Premier is going too far when he says that, and most certainly I did vote for the war. I hold very strong opinions about the origin of the war."

"I am satisfied with the statements made by my honorable friend," continued Premier Lloyd George. "He supported the justice of the war. If he believed it was an unjust war he never would have voted for it. May I say so quite respectfully and after a good deal of reflection and hesitation, because, after all, one does not want to propose anything to raise controversy and trouble when, Heaven knows, we have as much trouble as we can possibly deal with. I would not do it unless I thought it was just after great reflection.

"It is indefensible that you should ask young men of 18 years and married men of 35 and 40 with families, and even up to 50, in England, Scotland, and Wales, and that you should compel them to fight for the freedom and independence of a small Catholic nationality in Europe, while the young men of 20 to 25 in Ireland are under no obligation to take up arms for a cause which is just as much theirs as ours. It is not merely illogical, it is unjust.

"There is such a thing as justice for Scotland, England, and Wales, and the emergency which Mr. Redmond contemplated and which I still respectfully suggest the member for Mayo also contemplated, that we should not win this war without taking this measure, has arisen. President Wilson's dramatic decision in the last few days is the best proof, and there is a special emergency with regard to Ireland.

"Irish battalions and divisions, according to all testimony, have maintained the high honor and repute of their native land, and those battalions are sadly depleted and they are now filled, or half filled, with Englishmen. If it were merely England's battle, the young men of Ireland might regard the fact with indifference, but it is not. They are just as much concerned as the young men of England.

"Therefore, we propose to extend the Military Service Act to Ireland, under the same conditions as in Great Britain. As there is no machinery in existence and no register has yet been completed in Ireland, it may take some weeks before actual enrollment begins. As soon as arrangements are complete the government shall by an order in council put the act into immediate operation."

"That is a declaration of war against Ireland," interrupted William O'Brien, Nationalist member for Cork. Michael Flavin, member for Kerry, added: "And Irishmen all over the world."

"Without delay!" replied the Premier, who continued: "Meanwhile, we intend to invite Parliament to pass a measure of self-government for Ireland."

"You can keep it," said Alfred Byrne, Nationalist, for Dublin.

"Let there be no misapprehension. Both questions will not hang together. Each must be taken on its merits," said the Premier.

"You can keep both," replied Mr. Byrne.

"Well," said the Premier, "if that is the view of Home Rule, it is a new view for Ireland.

"While Great Britain is fighting for national rights in Europe with all her reserves and strength she is prepared to concede the same rights in her own sphere of government. The report of the remarkable convention which has been held in Ireland and which has just brought its proceedings to a termination, affords the British Parliament another opportunity of approaching this vexed question with more hope of success."—*New York Times*, 11/4.

COMMONS PASSES MAN POWER BILL.—London, April 16.—The House of Commons to-night rejected John Dillon's motion for the omission of the Irish conscription clause from the Man Power bill by a majority of 176, and finally passed the third reading of the whole bill by 301 to 103, a majority of 198.

London, April 16.—Geogre N. Barnes, Labor member of the War Cabinet without portfolio, announced in the House of Commons to-day that the government intended to introduce a Home Rule bill immediately, and would use every pressure to pass it.

Mr. Barnes also announced that the Lloyd George government would resign if the House of Lords refused to pass the new bill.

Premier Lloyd George, in a speech in the Commons, said:

"It is desirable in the interest of the war that we should settle the Irish question and produce something like contentment in Ireland, and good-will in America."

Mr. Lloyd George said he believed that American opinion supported the Man Power bill, provided that self-government were given to Ireland, and it was of the greatest importance, at the moment America was rendering to the Allies great aid on the battlefield, that Great Britain should satisfy American opinion. Nothing would tend more, he said, to secure the greatest measure of American assistance.—*N. Y. Times*, 17/4.

RESULTS OF IRISH CONVENTION.—On April 9, the report of Sir Horace Plunkett, chairman of the convention on Irish Government that has been in session for the last eight months, was read in the British House of Commons. While not in the proper sense a majority report, the document presented a scheme of government for Ireland which, according to the chairman, was agreed upon by all the Southern Unionists, a majority of the Nationalists, and five out of the seven Labor representatives. The difficulties of the convention were summed up in the two words "Ulster" and "customs," the latter referring to the demand of the Nationalists for full control of customs and excise revenue, to which neither the Ulster Unionists nor the Southern Unionists would agree.

The scheme proposed provides for an Irish Parliament, subordinate to the Parliament of the United Kingdom, the question of fiscal control to be left until after the war.

ALLIED LABOR'S WAR AIMS.—An inter-Allied Labor and Socialist Conference has just concluded its sittings in London, says the London *Clarion*, a Socialist organ, and it drew up a comprehensive memorandum on war aims. It is a modification of the British Labor party's statement of last August, but is significant as it has received the indorsement of the Labor and Socialist organizations in Britain, France, Italy, South Africa, Belgium, and Roumania. It is thus reported:

"The resolution to fight until victory is achieved by which Belgium and the other forcibly annexed peoples are liberated is reaffirmed.

"A League of Nations to prevent wars, democratically founded, is made the basis of peace. The section defining the constitution of the League has been rewritten more clearly and fully. Large powers are claimed for it.

"On Alsace-Lorraine the French Socialist demand is explicitly followed. This involves, first, the disannexation of the territory by Germany; the people then are freely to choose their destiny.

"Similarly, it is now claimed that Servia, Montenegro, Roumania, and all the Balkan territories overrun must be evacuated, and each people given full liberty to settle its own destiny. Slavs in Italian territory and Italians in Slavonian territory must have full liberty of local self-government.

"Absolute independence and unity of Poland are more emphatically demanded.

"No annexation of Livonia, Courland, or Lithuania by Germany is admissible.

"With regard to Austria-Hungary, the Czecho-Slovaks' and the Southern Slavs' right to independence is laid down, and also national independence for peoples which demand it, with freedom to substitute a federation of Danubian States for the Austro-Hungarian Empire.

"The paragraph on tropical Africa has been rewritten. Instead of all tropical Africa being handed to the control of the League of Nations, the conquered colonies are to be specially decided on at the Peace Conference, and those in tropical Africa to be controlled according to international agreement under the League of Nations, with economic equality of treatment for all nations, so that none shall be shut out from raw materials or trade.

"No economic boycott of any country after the war.

"It was decided to send the program of the conference to the enemy countries, and to ask for a reply in the hope of securing the adhesion of the socialists of the Central Empires. A committee was appointed to communicate Labor war aims to the Allied Governments, and to secure a promise that one representative of labor should form part of each government's representation at the Peace Conference."—*Literary Digest*, 6/4.

SEIZURE OF DUTCH SHIPS

On March 20, President Wilson issued a proclamation authorizing the Secretary of the Navy to take over all such vessels of Netherlands registry within the territorial waters of the United States as might be necessary for the prosecution of war on Germany. It was estimated that there were at that time approximately 500,000 tons of these ships in American waters, with an equal amount of tonnage within the jurisdiction of Great Britain and France.

In a statement supplementing the proclamation, President Wilson reviewed the preceding negotiations, and made it clear that he sympathized with Holland's precarious position as a result of Germany's defiant attitude, which made impossible "the meeting of free wills."

DUTCH GOVERNMENT'S PROTEST.—On March 30, the Dutch Government issued a strong protest against the action of the American Government, apparently admitting the legality of the action, but declaring it unjustified on higher grounds. The first part of the statement reads as follows:

"With painful surprise, the government and the whole Dutch nation have taken notice of the Presidential proclamation and the statement of March 20, relative to the seizure of part of the Dutch merchant fleet. The seizure en bloc of a neutral mercantile fleet, if only for the duration of the war, is an act indefensible from the viewpoint of international law and unjustifiable toward a friendly nation, apart from considerations of legality. But the manner, also, in which the Presidential statement defends this act of violence does not contribute toward lessening the sting thereof, for this

defence has plainly been drawn up under the influence of a completely incorrect representation of affairs.

"The manner in which the Dutch merchant fleet has been treated in past months in the United States, the incessant difficulties placed in the way of our sailings from American ports, repeated refusals of bunkering facilities, and forced unloading of cargoes already bought—all this may be within the rights of the United States (save one case, that of the *Zeelandia*, which with her own bunker coal entered an American port and has been unlawfully detained there since), but it surely was against the traditional friendship between the two countries, although on this point the Presidential statement keeps silence."

Here follows a detailed defence of the conduct of the Dutch Government in the protracted negotiations. When on March 7, the Allies insisted that the Dutch ships should be used in transport to France, Holland objected on the ground that "as a neutral country she could not consent to the use of her ships in the danger zone, unless the associated governments could guarantee that the ships would not be armed and would not transport troops or war materials."

SECRETARY LANSING'S REPLY.—On April 12, Secretary of State Lansing replied to the Dutch Protest, pointing out: (1) That the seizure of Dutch ships was entirely legal; (2) that Holland had clearly been prevented by Germany from carrying out her previous agreement; and (3) that the ships were requisitioned only for the period of the war and would be put in a highly lucrative service, all risks being assumed by the United States. The reply follows:

April 13.—"The Netherlands Government have issued a statement relative to the recent action of the government of the United States in putting into its service for the period of the present war emergency certain privately owned vessels of Netherlands registry lying within the territorial jurisdiction of the United States. While this action is referred to as being indefensible from the standpoint of international law, the statement of the Netherlands Government does not argue the question of legality. Nor is this government disposed to do so. The practice of nations and the opinions of jurists on the right of a belligerent to utilize all vessels which come voluntarily and unconditionally within its jurisdiction are sufficiently well known to render citation of precedent and of authority unnecessary. But, as the Netherlands Government themselves suggest, our action must be subjected to a finer test than that of mere legality. It matters very little that our act be legal if, as alleged, it violates traditional friendship and is inconsistent with ideals of right and justice.

"The Netherlands Government first declare that the very presence of Dutch ships in our ports resulted from our detention of them with an unfriendly hand. While our right to refuse bunkers and cargo license is conceded, friendship, it is said, should have led to the granting of special privileges in favor of the subjects of a friendly state. Our own supply of bunker coal at seaboard has been inadequate for our pressing national needs. The cargoes which were demanded were largely of grain, of which our own reserves are all too low. The bunkers, if granted, would have served to carry this grain to the Netherlands where, as events have demonstrated, it was not then needed, and where it would only have served to release equivalent foodstuffs for the enemy. Such action on our part, whatever its intention, would in fact have been an act beneficial to the enemy, and having no relation to our friendship to the Netherlands. The owners of Dutch ships were, however, unwilling that their ships should perform any other services than those which it was clearly impossible for

us to facilitate, and the ships of this maritime nation accordingly lay idle for many months and until the conclusion on January 25, 1918, of the temporary shipping agreement which was proposed by the Netherlands Commissioners at London and accepted by the United States as a measure to restore to immediate activity that portion of the Netherlands mercantile fleet lying within our waters.

"The statement of the Netherlands Government seems to imply that this agreement was in fact lived up to by the Netherlands Government, yet evidence to the contrary is found in the statement itself which refers to German objections as having prevented performance by that government of what is erroneously referred to as America's demand, but what was in reality a Netherlands undertaking, that when a Dutch ship left the United States for the Netherlands a corresponding Dutch vessel should simultaneously leave the Netherlands for the United States. Had not the Netherlands Government, under German threats of violence, which were a matter of common knowledge, felt unable to carry out the temporary shipping agreement, it is inexplicable that the S. S. *Samarinda* and *Adonis* would not have sailed for a Dutch port with their cargoes of foodstuffs, which under the agreement the Netherlands was to receive, and of which it was asserted her people were in direst need. Indeed, the statement of the Netherlands Minister for Foreign Affairs made to Parliament on March 12, 1918, if it is correctly reported to us, sets out in considerable detail Germany's objections, which prevented performance of this shipping agreement. As recently as March 14, 1918, after the Netherlands Government had been informed that the situation had reached a point where the associated governments could see no alternative but requisitioning, a note was presented on behalf of the Netherlands Government expressing the hope that Germany's objections might still be overcome, so as to permit at some future date complete performance of this agreement, which was to have been put into operation immediately and completely upon its conclusion, nearly two months before.

"One year ago, the United States abandoned its neutrality and pledged its entire resources of life and treasure to insure the triumph of democracy over autocracy and to assist to save the world from the blight of militarism. As a result of a species of naval warfare directed against belligerents and neutrals alike, which the Netherlands Government have themselves declared to be illegal, there has during this period existed a shortage of shipping which threatened to postpone at frightful cost the ultimate victory. This has created an emergency which in magnitude and significance has seldom if ever before been equalled. During this period there have been lying in ports of the United States and subject to its jurisdiction and control approximately 500,000 tons of ships of Netherlands registry.

At any time within a year the United States might have exercised its right to put these ships into a service useful to it. Yet it forebore and for many months patiently negotiated, first in Washington and then in London, until finally the temporary agreement of January 25 was entered into. No sooner was this agreement concluded than it broke down under German threats of violence which overruled the will of the Netherlands Government expressed therein. Then and then only did the United States take steps to accomplish through the exercise of its own right that which it was hoped could have been accomplished by agreement, and which the Netherlands Government had been willing in part so to accomplish.

"The action taken leaves available to the Netherlands Government by far the greater part of their merchant marine and tonnage which, according to estimates of their own officials, is ample for the domestic and Colonial needs of the Netherlands. Shipping required for these needs will be free from detention on our part and will be facilitated by the supplying of bunkers. The balance is being put into a highly lucrative service, the owners receiving the remuneration, and the associated governments assuming the risks involved. In order to insure to the Nether-

lands the future enjoyment of her merchant marine intact, not only will ships be returned at the termination of the existing war emergency, but the associated governments have offered to replace in kind rather than in money any vessels which may be lost whether by war or marine risk; 100,000 tons of bread cereal which the German Government when appealed to refused to supply, have been offered to the Netherlands by the associated governments out of their own inadequate supplies, and arrangements are being perfected to tender to the Netherlands Government other commodities which they desire to promote their national welfare, and for which they may freely send their ships.

"The statement of the Netherlands Government explicitly recognizes the traditional friendship of the United States toward their country. It recognizes that we have heretofore sought to act in accordance with the dictates of right and justice and to champion the interests of smaller nations. It should not therefore hastily be presumed that we have now abruptly repudiated that friendship and been false to those ideals. It is, in fact, difficult to believe that such a conclusion could be drawn from this exercise of our rights in a manner which scrupulously safeguards and indeed promotes the national interests of the Netherlands."

JAPANESE-AMERICAN SHIPPING AGREEMENT.—Washington, April 2.—More than 250,000 tons of shipping constructed in Japan, of which 30 vessels averaging 5000 tons each will fly the Japanese flag, soon will be in the transatlantic service carrying troops, food and munitions to France.

In addition to this tonnage, the United States Government has arranged for a new construction in Japan, which will aggregate another 200,000 tons.

All of the vessels, as rapidly as they can be made available, will be armed with guns, provided with gun crews, and all the lastest devices to fight the German submarines will be installed on them.

Official announcement already has been made by the War Trade Board of the sale to the United States of 100,000 tons of these vessels, the delivery of which will begin in May and will be completed by September. The government has also made formal announcement concerning negotiations to obtain the 200,000 tons of new construction.

The additional 150,000 tons making up the total of 450,000 tons are to be chartered by the United States, but will remain in the possession of Japan. The 30 vessels are now afloat and it is understood that they can be placed in the Atlantic soon enough to be of great value in supplying the fighting forces of Europe this summer.

In connection with the negotiations for the use of all of the tonnage involved in the transatlantic trade, the United States has agreed to furnish Japan with steel plates so that Japan's building program will not be interrupted. The first shipment of steel plates will total 100,000 tons, sufficient for the construction of 300,000 tons of shipping.

ALLIED FORCES IN VLADIVOSTOK

According to a despatch dated April 5 from the U. S. Consul at Vladivostok, a small armed force was on that date landed from Japanese cruisers in the harbor. "This action," according to the announcement, "was taken following an invasion of a Japanese office by five armed Russians, who, upon being refused money, opened fire, killing one Japanese and wounding two others."

Advices from Moscow on April 6, stated that British as well as Japanese forces had been landed. The Moscow Government announced that political steps would be taken and that the Soviets of Siberia had been ordered to offer armed resistance to enemy incursions.

London, April 8.—Official telegrams from Tokio, say that the landing of Japanese and British forces at Vladivostok was a purely local affair, and has no relation to any Japanese intervention in Siberia. The landing followed the pillaging on Thursday of Japanese business houses, during which three Japanese were killed. The police do not maintain order in the city, but on the contrary the local militia invites trouble.

A Reuter dispatch from Moscow says the Japanese diplomatic mission has issued a statement, guaranteeing that the landing of Japanese forces at Vladivostok is purely a local incident, and declaring that its object will soon be fufilled.

Vladivostok, Monday, April 1 (Associated Press).—Radical Bolsheviki are steadily arriving from Irkutsk and Blagovieshtchensk, sometimes accompanied by armed Austrian prisoners, with the avowed purpose of forcing the local Bolsheviki to adopt harsher measures. This has resulted in the seizure of the Russian volunteer fleet, and the occupation of post offices and telegraph offices.

SOUTH AMERICA

URUGUAY PUZZLED.—Montevido, April 12.—The government of Uruguay has asked Berlin, through Switzerland, if Germany considers that a state of war exists with Uruguay, as stated by the commander of a submarine who captured a Uruguayan military commission bound for France.

If the reply is in the affirmative Uruguay will declare a state of war. If a negative reply is received, Uruguay will demand that the commissioners be liberated on parole.

The above dispatch indicates that a German submarine captured a Uruguayan mission to France. This is the first intimation that such an incident had occurred—*N. Y. Times*, 4/13.

FINANCIAL STATISTICS

U. S. WAR EXPENDITURES AND TAXATION.—Interesting figures were recently published by the Treasury Department, covering expenditures for the month of March, and for the first nine months of this fiscal year. On this basis, the *N. Y. Evening Post* estimates that the total expenditures for the full year ending July 1, 1918, will be about $12,200,000,000, which is six and one-half billion smaller than the government estimate of last December.

Of this sum, the amount actually expended for war purposes, exclusive of loans, has been something over $4,600,000,000 for the nine months ending March 31, which is only one-third of the amount estimated for the full year. This difference is at least partly accounted for by the fact that the country's capacity for production has not equaled the assumptions when the appropriations were made.

On the other hand, the yield of the new war taxes has been considerably underestimated. Even on the estimates made last October, the United States, on the basis of the expenditures estimated above, will be meeting 45 per cent of her war-time expenditures by taxation, as compared with 20 per cent in England, 16 per cent in France and Italy, and 10 to 11 per cent in Germany. And if the revenue should be even $500,000,000 greater than the estimates, the taxpayers would be providing over 50 per cent of war expenditures. This is a proportion unprecedented in past wars.

DEBTS OF WARRING POWERS.—Three and one-half years of war have placed the eight chief belligerents just $137,404,000,000 in debt. More than two-thirds of this total public debt is charged to Great Britain, France, Italy, Russia, and the United States.

Official figures made public yesterday by the federal reserve board show the allied countries with an aggregate public debt of $92,978,000,000, as against $44,426,000,000 charged against the governments of Germany, Austria and Hungary. Great Britain, without her colonies, is most heavily indebted, with Germany and Russia close behind.

FIGURES IN DETAIL.—The detailed figures follow:

ALLIED POWERS

Great Britain	$27,636,000,000
Australia	942,000,000
Canada	1,011,000,000
New Zealand	611,000,000
South Africa	734,000,000
France	22,227,000,000
Russia	25,383,000,000
United States	7,758,000,000
Italy	6,676,000,000
Total	$92,978,000,000

CENTRAL POWERS

Germany	$25,408,000,000
Austria	13,314,000,000
Hungary	5,704,000,000
Total	$44,426,000,000

The financial position of the Allies as a group is far stronger than that of the Central Powers, however. All the Allies except Russia and Italy, show a higher percentage of gold and silver deposits against their notes than any of the Central Powers. Federal reserve board figures show the United States as the strongest power, with gold and silver amounting to 61.7 per cent of her note and deposit liabilities. Japan ranks second, with 46.6 per cent.

ENGLISH PERCENTAGE 27.5

Great Britain is strongest of the countries in the war from the start. She has gold and silver amounting to 27.5 per cent of her liabilities in notes, and France has 13.7 per cent, with Italy third, at 11.5 per cent. Russian figures show 6.8 per cent.

Germany has gold and silver amounting to 13.3 per cent of her paper liabilities, while Austria is virtually bankrupt, with 1.1 per cent. In other words, the Austrian Government is doing $100 worth of business on every gold or silver dollar she can muster.—*Washington Post*, 16/4.

REVIEW OF BOOKS
ON
SUBJECTS OF PROFESSIONAL INTEREST

"A Survey of International Relations between the United States and Germany, August 1, 1914–April 6, 1917." Based on Official Documents. By James Brown Scott. $5.00. (New York: Oxford University Press, 1917.)

It should be understood that this is one of three volumes, each separate and distinct from the others, but of the same format, edited by the same author, and intended to be used together. The second book is "The Diplomatic Correspondence between the United States and Germany: August 1, 1914–April 6, 1917"; the third is "President Wilson's Foreign Policy: A Collection of the President's Addresses, Messages, and Papers on Foreign Policy."

The author, James Brown Scott, has been recognized for some years as the foremost authority on international law in the United States. Now that his three definitive books have been published, a brief biography is in order. A lawyer and an educator, he was graduated from Harvard in 1890. After taking his Master's degree in 1891, and being appointed to a Parker Fellowship, he specialized in international law, 1891-1894, at Berlin, Heidelberg, and Paris. In 1894, he received the degree of Doctor of Jurisprudence of the University of Heidelberg. Returning to the United States, he founded and became the dean of the law school of the University of Southern California, and he was subsequently dean of the College of Law of the University of Illinois; professor of law in the Columbia Law School; at the University of Chicago; and at George Washington University, where, in 1906, he became professor of international law. From 1906 to 1911, he was also solicitor for the state department. Posts of honor in the service of the government have been as follows: technical delegate and expert in international law of the United States at the second Peace Conference at The Hague, 1907; counsel for the United States in the North Atlantic Fisheries Arbitration at The Hague, 1910; at the outbreak of war in 1914, special advisor to the Department of State; and in 1917, Major and Judge Advocate, United States Reserves. He was chairman of the State and Navy Departments Neutrality Board; lecturer on international law at Johns Hopkins University. Secretary of the Carnegie Endowment for International Peace, delegate to the second Pan-American Scientific Congress, editor-in-chief of the American Journal of International Law, and President of the American Institute of International Law, his training, his experience, his achievements in diplomacy, and the technical advice he has given in grave questions affecting the relations between the United States and Germany, as well as the importance of the positions he has occupied, constitute a valid basis for assuming that he is the supreme

authority on the subjects treated in the three volumes. Finally, it is pleasant to record the fact that the royalties due to Dr. Scott will be presented to the Department of State War Relief Work Committee. To those who have met the author this is no surprise, but a confirmation of the high regard in which he is held. To his judicial temperament and calm reasoning, which have made his arraignment of Germany more impressive than any amount of bitter invective, has been added the last touch of disinterestedness.

The arrangement of material in "A Survey of International Relations between the United States and Germany" is logical. The Introduction contains first, without comment, President Wilson's Address to the Congress, April 2, 1917, followed by the Joint Resolution declaring a state of war to exist between the United States and the Imperial German Government, April 6, 1917. The third division of the Introduction is devoted to "German Conceptions of the State, International Policy, and International Law." The reader here finds, for 93 pages, a closely knit structure of quotation and comment, with constant references to the originals, which covers the writings and utterances of Frederick the Great, Hegel, von Clausewitz, Arndt, Frederick William IV, Mommsen, Bismarck, von Moltke, Lasson, Rümelin, Treitschke, the *Kriegsbrauch im Landkriege,* von Bernhardi, Bethmann-Hollweg, and William II. Perhaps no other writer has selected the significant essentials of this field of opinion and doctrine more wisely, made them fit more compactly into an integral whole, or given such convincing evidence that the editing is just and virtually final. Compared with similar summaries, it is noteworthy for the omission of many familiar quotations, and the inclusion of matter that is usually overlooked.

The method of the main part of the book—19 chapters—is constantly to reinforce the author's accuracy in narrative, or his soundness of view, by footnotes which contain not only references but bibliographies, by giving the text of documents in full—in a word, never avoiding any issue, or leaving any stone unturned to present the truth, no fact unsupported, no claim of the defendant minimized or slurred over. Future attempts of German scholars to find flaws in this presentation of the case of the United States will certainly be worth watching.

In order, Dr. Scott considers the genesis of the war, the neutrality of the United States, German charges of unneutral conduct, and the censorship of communications. All German charges are answered categorically. In view of policies put in force by the United States since its entry into the war, conflicts between American and British opinion, now seen in retrospect, with all the evidence and law reviewed, give two clear impressions, (1) that the government of the United States "leaned over backward" in maintaining the strictest neutrality; (2) that in every important discussion, the British Government found decisions of the United States Supreme Court to warrant the principles if not the details of international law upon which Great Britain has acted. In justice to both the British and the American governments, it should now be realized that the former was, under the circumstances, more than fair in its application of principles, that the latter was more than strict, and that the concrete

result was a situation lasting over two years which tended to injure the rightful interests of Great Britain, and also to increase the burden of war, to which the United States later became committed. In other words, the actual effect of the whole controversy concerning neutrality and blockade, as it worked out in terms of adjustment in the application of international law, was to the benefit of Germany. To prove that Germany was treated unfairly would necessitate proof that the body of international law as it existed prior to the outbreak of war was in itself unfair.

In order to treat every aspect of the subject, Dr. Scott was of course obliged to consider questions of widely varying importance. For those who have not seen the volume, it should be outlined. After the chapter on censorship there are treated in order: Unlawful seizure of persons upon the high seas; restraints on commerce; sale of munitions of war; miscellaneous complaints (the sale of dumdum bullets, failure to protest against modification of the Declaration of London, etc.); submarine warfare (the *Lusitania*, the *Arabic*, and the *Sussex*); reprisals, retaliation, necessity; belligerent use of neutral flags; mines, war zones, and blockade; status of merchant vessels; the accepted rules of maritime warfare; renewal of submarine warfare; severance of diplomatic relations and proclamation of armed neutrality. The concluding chapters deal with the declaration of war, with the question "Why not arbitration?" and with the freedom of the seas; and a post scriptum quotes the texts of documents from the President's reply to the Pope's peace appeal to the declaration of war with the Imperial and Royal Austro-Hungarian Government.

From the welter of details, the intricacies or the plain bluntness of international law involved, the differences in the interpretation of the same principle or sanction, there emerges, when one has finished reading 379 pages, certain clear impressions, and solid conclusions: first, that whatever faults may be found with the sincerity or the justice of the cases of Great Britain and the United States, even in the aggregate they weigh as nothing against any one of many of the single crimes and falsehoods of the Imperial German Government; secondly, that the watchword of the British Government in its conduct of war might well have been "a decent respect for the opinions of mankind"; thirdly, that the government of the United States was, against its own best interests in the future at times, almost incredibly patient. If there is anything for Americans to regret in the whole record, it is the cases in which our government made strong objection to British policies which we have since not only carried out ourselves, but exceeded in practical completeness, and the cases in which we took at face value statements of the German Government, which were cynically false. It is possible that in a few minor cases we restrained England from actions which she might better have avoided; it is probable that we did very much toward delaying the full unmasked frightfulness of German warfare on the sea; it is certain, "as God gives us to see the right," that we acted in accordance with that "true honor and dignity of the nation," which, as Gallatin said, "are inseparable from justice." We were not only "good" to Germany, but, almost to our disastrous undoing, we were "unco guid."

H. C. WASHBURN.

"The Virgin Islands of the United States of America." By Luther K. Zabriskie, formerly vice-consul at St. Thomas. 339 pages, 109 illustrations, and 2 maps. Price $4.00. (New York: G. P. Putnam's Sons, 1918.)

Those who seek concise, well-organized information about our new island possessions will prefer books of a less popular character than this one. For instance, Westegaard's *Danish West Indies* covers the early history more thoroughly; the report recently issued by the U. S. Bureau of Foreign and Domestic Commerce supplies the best data on trade and resources; and the harbor of St. Thomas is well described in an article by Lieut. Commander Byron McCandless, Naval Institute PROCEEDINGS, September–October, 1916. On the other hand, Mr. Zabriskie writes with the familiarity of an old resident, gives a pleasant account of life in town and country and the character, industries, and interests of the people, and takes up a variety of matters not treated in more systematic handbooks.

The population of the Danish West Indies, according to the census of 1911, was in round numbers 27,000, divided as follows: St. Croix, 15,500; St. Thomas, 10,700; St. John, 900. About seven per cent are of unmixed white blood. English has long been the language in general use. Since 1835 the population has fallen off about 16,000, corresponding to the gradual decline in commercial importance.

In the struggles of France, England, and Spain, and later during our Civil War, the port of Charlotte Amalie in St. Thomas prospered as a resort for belligerent vessels and a safe neutral entrepôt for trade between Europe and the West Indies. After 1870, however, both Great Britain and France shifted their trading bases to their own colonies, and the more recent enterprises of the Hamburg-American Line ceased with the outbreak of the present war.

The total imports for the year ending March 31, 1917, amounted to about $967,000. Of the imports of St. Thomas alone, amounting to $734,860, the share of the United States was $332,286, and the rest fell in much smaller portions to the West Indies, England, France, and Holland. In the last year before the war, out of a total of $980,500, the share of the United States was $553,000 ($253,000 in bunker coal for Germany), and that of Germany $55,000. No satisfactory figures are given for exports, which consist chiefly of sugar and bay rum. In 1916, about $200,000 worth of sugar was shipped to the United States.

All local expenses—for police, schools, roads, etc.,—are met by local taxation and customs. The total cost of the colony to Denmark (including *gendarmery*, $74,000, and the rest chiefly salaries, pensions, etc.) was in 1916, $142,000, of which only $14,500 was raised in the islands.

In 1866, when she was in hard straits after the war with Prussia, Denmark was quite willing to sell her colony for $7,500,000; but the deal fell through owing to opposition in the U. S. Senate to every policy of the Johnson administration. Two later treaties, in 1898 and 1902, were defeated in the Danish Upper House, as a result, it has been thought, of German influence. The price then set was $5,000,000. The convention drawn up in 1916 was approved by a Danish plebiscite, December 22, 1916; the transfer was completed March 17, 1917; and the American governor, Rear Admiral James H. Oliver, assumed office on April 7 following. About

one-fourth of Mr. Zabriskie's book is taken up with the interesting ceremonies at the time when the islands changed hands. A. F. W.

"Jane's Fighting Ships, 1917." (20th Edition.) Edited by Maurice Prendergrast. 25s. net. (London and Edinburgh: Sampson Low, Marston and Co., Ltd.)

In this publication, the fighting ships of maritime nations are described by photos, views and general data. The navies are taken up in order of their numerical strength; the descriptions are preceded by illustrations of flags and naval insignia, general notes concerning personnel, silhouettes, and reproductions of charts of important drydocks and naval harbors. In this edition the photos and views of British and U. S. ships are omitted, as well as the customary article on engineering; new data, since entrance into the war of those nations concerned, are practically confined to those given out in official statements; the data of several navies, notably that of Japan, have been revised by naval officers or officials connected with the marine. Several photos of enemy submarines are given.

To those who have recently entered the service "Jane's Fighting Ships" merits considerable study. G. B. K.

"Engineering Descriptive Geometry." By Captain Frank W. Bartlett, U. S. N., and Professor of Mathematics Theodore W. Johnson, U. S. N.

This book, written for the use of Midshipmen at the U. S. Naval Academy, is divided into three natural parts, Line Drawing, Engineering Descriptive Geometry, and Engineering Drawing. These parts are issued separately or bound in one volume as desired.

Part I, Line Drawing, treats of the drawing instruments and the manner of using them to produce all the varieties of lines used in engineering drawing and the lettering suited to the subject. The attention is fixed on the methods of manipulating the instruments and the means of acquiring manual dexterity.

Part II, Engineering Descriptive Geometry, is a treatise on Descriptive Geometry as the basis of Mechanical Drawing, explaining geometrically the operations customary in the drafting room. The authors have wisely treated the subject from a strictly engineering point of view rather than from a mathematical one. They have made the subject more "descriptive" and less "geometrical."

Part III, Engineering Drawing, is arranged as a complete text-book on engineering or mechanical drawing and is suited to the needs of engineering students who have a knowledge of Line Drawing and of the principles of Descriptive Geometry. Use is made of orthographic projections as applied to engineering drawing. The author of this part, Professor Johnson, has also included the recognized conventional abbreviations used in practice and some tables of standards. Naval practice is followed where possible.

The text-book is especially arranged to facilitate self-instruction. It is therefore equally valuable outside of the Naval Academy and will be found very helpful to the uniformed man or to the civilian seeking promotion. C. P. B.

NOTICE

The U. S. Naval Institute was established in 1873, having for its object the advancement of professional and scientific knowledge in the Navy. It is now in its forty-fifth year of existence, trusting as heretofore for its support to the officers and friends of the Navy. The members of the Board of Control cordially invite the co-operation and aid of their brother officers and others interested in the Navy, in furtherance of the aims of the Institute, by the contribution of papers and communications upon subjects of interest to the naval profession, as well as by personal support and influence.

On the subject of membership the Constitution reads as follows:

ARTICLE VII

Sec. 1. The Institute shall consist of regular, life, honorary and associate members.

Sec. 2. Officers of the Navy, Marine Corps, and all civil officers attached to the Naval Service, shall be entitled to become regular or life members, without ballot, on payment of dues or fees to the Secretary and Treasurer. Members who resign from the Navy subsequent to joining the Institute will be regarded as belonging to the class described in this Section.

Sec. 3. The Prize Essayist of each year shall be a life member without payment of fee.

Sec. 4. Honorary members shall be selected from distinguished Naval and Military Officers, and from eminent men of learning in civil life. The Secretary of the Navy shall be, *ex officio*, an honorary member. Their number shall not exceed thirty (30). Nominations for honorary members must be favorably reported by the Board of Control. To be declared elected, they must receive the affirmative vote of three-quarters of the members represented at regular or stated meetings, either in person or by proxy.

Sec. 5. Associate members shall be elected from Officers of the Army, Revenue Cutter Service, foreign officers of the Naval and Military professions, and from persons in civil life who may be interested in the purposes of the Institute.

Sec. 6. Those entitled to become associate members may be elected life members, provided that the number not officially connected with the Navy and Marine Corps shall not at any time exceed one hundred (100).

Sec. 7. Associate members and life members, other than those entitled to regular membership, shall be elected as follows: "Nominations shall be made in writing to the Secretary and Treasurer, with the name of the member making them, and such nominations shall be submitted to the Board of Control. The Board of Control will at each regular meeting ballot on the nominations submitted for election, and nominees receiving a majority of the votes of the board membership shall be considered elected to membership in the United States Naval Institute."

Sec. 8. The annual dues for regular and associate members shall be two dollars and fifty cents, all of which shall be for a year's subscription to the UNITED STATES NAVAL INSTITUTE PROCEEDINGS, payable upon joining the Institute, and upon the first day of each succeeding January. The fee for life membership shall be forty dollars, but if any regular or associate member has paid his dues for the year in which he wishes to be transferred to life membership, or has paid his dues for any future year or years, the amount so paid shall be deducted from the fee for life membership.

ARTICLE X

Sec. 2. One copy of the PROCEEDINGS, when published, shall be furnished to each regular and associate member (in return for dues paid), to each life member (in return for life membership fee paid), to honorary members, to each corresponding society of the Institute, and to such libraries and periodicals as may be determined upon by the Board of Control.

The PROCEEDINGS are published monthly; subscription for non-members. $3.00; enlisted men, U. S. Navy, $2.50. Single copies, by purchase, 30 cents; issues preceding January, 1918, 50 cents.

All letters should be addressed U. S. Naval Institute, Annapolis, Md., and all checks. drafts. and money orders should be made payable to the same.

SPECIAL NOTICE

NAVAL INSTITUTE PRIZE ESSAY, 1919

A prize of two hundred dollars, with a gold medal, and a life-membership (unless the author is already a life member) in the Institute, is offered by the Naval Institute for the best essay on any subject pertaining to the naval profession published in the PROCEEDINGS during the current year. The prize will be in addition to the author's compensation paid upon publication of the essay.

On the opposite page are given suggested topics. Essays are not limited to these topics and no additional weight will be given an essay in awarding the prize because it is written on one of these suggested topics over one written on any subject pertaining to the naval profession.

The following rules will govern this competition:

1. All essays published in the PROCEEDINGS during 1918, which are deemed by the Board of Control to be of sufficient merit, will be passed upon by the Board during the month of January, 1919, and the award for the prize will be made by the Board of Control, voting by ballot.

2. No essay received after November 1 will be available for publication in 1918. Essays received subsequent to November 1, if accepted, will be published as soon as practicable thereafter.

3. If, in the opinion of the Board of Control, the best essay published during 1918 is not of sufficient merit to be awarded the prize, it may receive "Honorable Mention," or such other distinction as the Board may decide.

4. In case one or more essays receive "Honorable Mention," the writers thereof will receive a minimum prize of seventy-five dollars and a life-membership (unless the author is already a life member) in the Institute, the actual amounts of the awards to be decided by the Board of Control in each case.

5. Essays are limited to fifty (50) printed pages in the PROCEEDINGS of the Institute.

6. It is requested that all essays be submitted typewritten and in duplicate; essays submitted written in longhand and in single copy will, however, receive equal consideration.

7. In the event of the prize being awarded to the winner of a previous year, a gold clasp, suitably engraved, will be given in lieu of the gold medal.

By direction of the Board of Control.

G. M. RAVENSCROFT,
Lieut. Commander, U. S. N., Secretary and Treasurer.

TOPICS FOR ESSAYS

SUGGESTED BY REQUEST OF THE BOARD OF CONTROL

"Duties and responsibilities of subordinates with special reference to the relations between Commanders in Chief and Chief of Naval Operations; Commanders in Chief and Force Commanders; Force Commanders and Division Commanders."

"Initiative of the subordinate—its true meaning."

"Military efficiency dependent upon national discipline."

"Governmental organization for war."

"Naval Gunnery, now and of the future."

"Naval Policies."

"The place of the Naval Officer in International Affairs."

LIST OF PRIZE ESSAYS

"WHAT THE NAVY HAS BEEN THINKING ABOUT"

1879

Naval Education. Prize Essay, 1879. By Lieut. Commander A. D. Brown, U. S. N.

NAVAL EDUCATION. First Honorable Mention. By Lieut. Commander C. F. Goodrich, U. S. N.

NAVAL EDUCATION. Second Honorable Mention. By Commander A. T. Mahan, U. S. N.

1880

"The Naval Policy of the United States." Prize Essay, 1880. By Lieutenant Charles Belknap, U. S. N.

1881

The Type of (I) Armored Vessel, (II) Cruiser Best Suited to the Present Needs of the United States. Prize Essay, 1881. By Lieutenant E. W. Very, U. S. N.

SECOND PRIZE ESSAY, 1881. By Lieutenant Seaton Schroeder, U. S. N.

1882

Our Merchant Marine: The Causes of Its Decline and the Means to Be Taken for Its Revival. "Nil clarius aquis." Prize Essay, 1882. By Lieutenant J. D. Kelley, U. S. N.

"MAIS IL FAUT CULTIVER NOTRE JARDIN." Honorable Mention. By Master C. G. Calkins, U. S. N.

"SPERO MELIORA." Honorable Mention. By Lieut. Commander F. E. Chadwick, U. S. N.

"CAUSA LATET: VIS EST NOTISSIMA." Honorable Mention. By Lieutenant R. Wainwright, U. S. N.

1883

How May the Sphere of Usefulness of Naval Officers Be Extended in Time of Peace with Advantage to the Country and the Naval Service? "Pour encourager les Autres." Prize Essay, 1883. By Lieutenant Carlos G. Calkins, U. S. N.

"SEMPER PARATUS." First Honorable Mention. By Commander N. H. Farquhar, U. S. N.

"CULIBET IN ARTE SUA CREDENDUM EST." Second Honorable Mention. By Captain A. P. Cooke, U. S. N.

1884

The Reconstruction and Increase of the Navy. Prize Essay, 1884. By Ensign W. I. Chambers, U. S. N.

1885

Inducements for Retaining Trained Seamen in the Navy, and Best System of Rewards for Long and Faithful Service. Prize Essay, 1885. By Commander N. H. Farquhar, U. S. N.

1886

What Changes in Organization and Drill Are Necessary to Sail and Fight Effectively Our Warships of Latest Type? "Scire quod nescias." Prize Essay, 1886. By Lieutenant Carlos G. Calkins, U. S. N.

THE RESULT OF ALL NAVAL ADMINISTRATION AND EFFORTS FINDS ITS EXPRESSION IN GOOD ORGANIZATION AND THOROUGH DRILL ON BOARD OF SUITABLE SHIPS. Honorable Mention. By Ensign W. L. Rodgers, U. S. N.

1887

The Naval Brigade: Its Organization, Equipment and Tactics. "In hoc signo vinces." Prize Essay, 1887. By Lieutenant C. T. Hutchins.

1888

Torpedoes. Prize Essay, 1888. By Lieut. Commander W. W. Reisinger, U. S. N.

1891

The Enlistment, Training and Organization of Crews for Our Ships of War. Prize Essay, 1891. By Ensign A. P. Niblack, U. S. N.

DISPOSITION AND EMPLOYMENT OF THE FLEET: SHIP AND SQUADRON DRILL. Honorable Mention, 1891. By Lieutenant R. C. Smith, U. S. N.

1892

Torpedo-boats: Their Organization and Conduct. Prize Essay, 1892. By Wm. Laird Clowes.

1894

The U. S. S. Vesuvius, with Special Reference to Her Pneumatic Battery. Prize Essay, 1894. By Lieut. Commander Seaton Schroeder, U. S. N.

NAVAL REFORM. Honorable Mention, 1894. By Passed Assistant Engineer F. M. Bennett, U. S. N.

1895

Tactical Problems in Naval Warfare. Prize Essay, 1895. By Lieut. Commander Richard Wainwright, U. S. N.

A SUMMARY OF THE SITUATION AND OUTLOOK IN EUROPE. An Introduction to the Study of Coming War. Honorable Mention, 1895. By Richmond Pearson Hobson, Assistant Naval Constructor, U. S. N.

SUGGESTIONS FOR INCREASING THE EFFICIENCY OF OUR NEW SHIPS. Honorable Mention, 1895. By Naval Constructor Wm. J. Baxter, U. S. N.

THE BATTLE OF THE YALU. Honorable Mention, 1895. By Ensign Frank Marble, U. S. N.

1896

The Tactics of Ships in the Line of Battle. Prize Essay, 1896. By Lieutenant A. P. Niblack, U. S. N.

THE ORGANIZATION, TRAINING AND DISCIPLINE OF THE NAVY PERSONNEL AS VIEWED FROM THE SHIP. Honorable Mention, 1896. By Lieutenant Wm. F. Fullam, U. S. N.

NAVAL APPRENTICES, INDUCEMENTS, ENLISTING AND TRAINING. The Seaman Branch of the Navy. Honorable Mention, 1896. By Ensign Ryland D. Tisdale, U. S. N.

THE COMPOSITION OF THE FLEET. Honorable Mention 1896. By Lieutenant John M. Ellicott, U. S. N.

1897

Torpedo-boat Policy. Prize Essay, 1897. By Lieutenant R. C. Smith, U. S. N.

A PROPOSED UNIFORM COURSE OF INSTRUCTION FOR THE NAVAL MILITIA. Honorable Mention, 1897. By H. G. Dohrman, Associate Member, U. S. N. I.

TORPEDOES IN EXERCISE AND BATTLE. Honorable Mention, 1897. By Lieutenant J. M. Ellicott, U. S. N.

1898

Esprit de Corps: A Tract for the Times. Prize Essay, 1898. By Captain Caspar Frederick Goodrich, U. S. N.

OUR NAVAL POWER. Honorable Mention, 1898. By Lieut. Commander Richard Wainwright, U. S. N.

TARGET PRACTICE AND THE TRAINING OF GUN CAPTAINS. Honorable Mention, 1898. By Ensign R. H. Jackson, U. S. N.

1900

Torpedo Craft: Types and Employment. Prize Essay, 1900. By Lieutenant R. H. Jackson, U. S. N.

THE AUTOMOBILE TORPEDO AND ITS USES. Honorable Mention, 1900. By Lieutenant L. H. Chandler, U. S. N.

1901

Naval Administration and Organization. Prize Essay, 1901. By Lieutenant John Hood, U. S. N.

1903

Gunnery in Our Navy. The Causes of Its Inferiority and Their Remedies. Prize Essay, 1903. By Professor Philip R. Alger, U. S. N.

A NAVAL TRAINING POLICY AND SYSTEM. Honorable Mention, 1903. By Lieutenant James H. Reid, U. S. N.

SYSTEMATIC TRAINING OF THE ENLISTED PERSONNEL OF THE NAVY. Honorable Mention, 1903. By Lieutenant C. L. Hussey, U. S. N.

OUR TORPEDO-BOAT FLOTILLA. The Training Needed to Insure Its Efficiency. Honorable Mention, 1903. By Lieutenant E. L. Beach, U. S. N.

1904

The Fleet and Its Personnel. Prize Essay, 1904. By Lieutenant S. P. Fullinwider, U. S. N.

A PLEA FOR A HIGHER PHYSICAL, MORAL AND INTELLECTUAL STANDARD OF THE PERSONNEL FOR THE NAVY. Honorable Mention, 1904. By Medical Inspector Howard E. Ames, U. S. N.

1905

American Naval Policy. Prize Essay, 1905. By Commander Bradley A. Fiske, U. S. N.

THE DEPARTMENT OF THE NAVY. Honorable Mention, 1905. By Rear Admiral Stephen B. Luce, U. S. N.

1906

Promotion by Selection. Prize Essay, 1906. By Commander Hawley O. Rittenhouse, U. S. N.

THE ELEMENTS OF FLEET TACTICS. First Honorable Mention, 1906. By Lieut. Commander A. P. Niblack, U. S. N.

GLEANINGS FROM THE SEA OF JAPAN. Second Honorable Mention, 1906. By Captain Seaton Schroeder, U. S. N.

THE PURCHASE SYSTEM OF THE NAVY. Third Honorable Mention, 1906. By Pay Inspector J. A. Mudd, U. S. N.

1907

Storekeeping at the Navy Yards. Prize Essay, 1907. By Pay Inspector John A. Mudd, U. S. N.

BATTLE REHEARSALS. A Few Thoughts on Our Next Step in Fleet-Gunnery. First Honorable Mention, 1907. By Lieut. Commander Yates Stirling, U. S. N.

THE NAVAL PROFESSION. Second Honorable Mention, 1907. By Commander Bradley A. Fiske, U. S. N.

1908

A Few Hints to the Study of Naval Tactics. Prize Essay, 1908. By Lieutenant W. S. Pye, U. S. N.

THE MONEY FOR THE NAVY. First Honorable Mention, 1908. By Pay Inspector John A. Mudd, U. S. N.

THE NATION'S DEFENCE—THE OFFENSIVE FLEET. How Shall We Prepare It for Battle? Second Honorable Mention, 1908. By Lieut. Commander Yates Stirling, U. S. N.

1909

Some Ideas about Organization on Board Ship. Prize Essay, 1909. By Lieutenant Ernest J. King, U. S. N.

THE NAVY AND COAST DEFENCE. Honorable Mention, 1909. By Commodore W. H. Beehler, U. S. N.

THE REORGANIZATION OF THE NAVAL ESTABLISHMENT. Honorable Mention, 1909. By Pay Inspector J. A. Mudd, U. S. N.

A PLEA FOR PHYSICAL TRAINING IN THE NAVY. Honorable Mention, 1909. By Commander A. P. Niblack, U. S. N.

1910

The Merchant Marine and the Navy. Prize Essay, 1910. By Naval Constructor T. G. Roberts, U. S. N.

THE NAVAL STRATEGY OF THE RUSSO-JAPANESE WAR. Honorable Mention, 1910. By Lieutenant Lyman A. Cotton, U. S. N.

1911

Navy Yard Economy. Prize Essay, 1911. By Paymaster Charles Conard, U. S. N.

NAVAL POWER. Honorable Mention, 1911. By Captain Bradley A. Fiske, U. S. N.

WANTED—FIRST AID. Honorable Mention, 1911. By Commander C. C. Marsh, U. S. N.

1912

Naval Might. Prize Essay, 1912. By Lieutenant Ridgely Hunt, U. S. N. (retired).

INSPECTION DUTY AT THE NAVY YARDS. Honorable Mention, 1912. By Lieut. Commander T. D. Parker, U. S. N.

1913

The Greatest Need of the Atlantic Fleet. Prize Essay, 1913. By Lieut. Commander Harry E. Yarnell, U. S. N.

NAVY DEPARTMENT ORGANIZATION. A Study of Principles. First Honorable Mention, 1913. By Commander Yates Stirling, Jr., U. S. N.

TRAINED INITIATIVE AND UNITY OF ACTION. Second Honorable Mention, 1913. By Lieut. Commander Dudley W. Knox, U. S. N.

1914

The Great Lesson from Nelson for To-day. Prize Essay, 1914. By Lieut. Commander Dudley W. Knox, U. S. N.

NAVAL POLICY AS IT RELATES TO THE SHORE ESTABLISHMENT AND THE MAINTENANCE OF THE FLEET. Honorable Mention, 1914. By Captain John Hood, U. S. N.

OLD PRINCIPLES AND MODERN APPLICATIONS. Honorable Mention, 1914. By Lieut. Commander Dudley W. Knox, U. S. N.

MILITARY PREPAREDNESS. Honorable Mention, 1914. By Naval Constructor Richard D. Gatewood, U. S. N.

1915

The Rôle of Doctrine in Naval Warfare. Prize Essay, 1915. By Lieut. Commander Dudley W. Knox, U. S. N.

AN AIR FLEET: OUR PRESSING NAVAL WANT. First Honorable Mention, 1915. By Lieut. Commander Thomas Drayton Parker, U. S. N.

TACTICS. Second Honorable Mention, 1915. By Ensign H. H. Frost, U. S. N.

DEFENCE AGAINST SURPRISE TORPEDO ATTACK. Third Honorable Mention, 1915. By Ensign R. T. Merrill, 2d, U. S. N.

1916

The Moral Factor in War. Prize Essay, 1916. By Lieutenant (J. G.) H. H. Frost, U. S. N.

NAVAL PERSONNEL. First Honorable Mention, 1916. By Lieut. Commander J. K. Taussig, U. S. N.

EDUCATION AT THE U. S. NAVAL ACADEMY. Second Honorable Mention, 1916. By Lieutenant Ridgely Hunt, U. S. N.

SOME UNDERLYING PRINCIPLES OF MORALE. Third Honorable Mention, 1916. By Commander Dudley W. Knox, U. S. N.

LARGE *vs.* A GREATER NUMBER OF SMALLER BATTLESHIPS. Lippincott Prize Essay. By Lieut. Commander Thomas Lee Johnson, U. S. N.

1917

Commerce Destroying in War. Prize Essay, 1917. By Commander Lyman A. Cotten, U. S. Navy.

THE PEOPLE'S RÔLE IN WAR. First Honorable Mention, 1917. By Lieutenant H. H. Frost, U. S. Navy.

THE NATION'S GREATEST NEED. Second Honorable Mention, 1917. By Colonel Dion Williams, U. S. Marine Corps.

1918

Letters on Naval Tactics. Prize Essay, 1918. By Lieutenant H. H. Frost, U. S. N.

THE PREPAREDNESS OF THE FUTURE. First Honorable mention, 1918. By Commander H. O. Rittenhouse, U. S. N. Retired.

NAVAL STRATEGY. Second Honorable Mention, 1918. By Rear Admiral Bradley A. Fiske, U. S. N.

NOTICE TO MEMBERS

NOTICE TO MEMBERS

More members, both regular and associate, are much desired. Any increase in membership invariably means larger number of papers and essays submitted, and consequently an improvement in the PROCEEDINGS.

You are requested to send or give the attached slip to some one eligible for membership, urging him to join.

By direction of the Board of Control,

G. M. RAVENSCROFT,
Secretary-Treasurer.

CONSTITUTION, Art. VII, Sec. 8.—"The annual dues for regular and associate members shall be two dollars and fifty cents, payable upon joining the Institute and upon the FIRST DAY OF EACH SUCCEEDING JANUARY. The fee for life membership shall be forty dollars." There is no initiation fee.

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To the Secretary and Treasurer,
U. S. Naval Institute,
Annapolis, Md.

Dear Sir:

Please enroll my name as a { *regular* / *associate* } *member of the U. S. Naval Institute from this date.*

Very truly yours,

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